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Service Paper Vice

AN INQUIRY INTO THE INTERESTS
OF CERTAIN EIGHTH-GRADE SCIENCE PUPILS

Submitted by

Harry Joseph Kane

(B.S.Ed. Bridgewater Teachers' College, 1929)

In partial fulfillment of requirements for the degree of Master of Education 1946

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CHAPTER I

THE PROBLEM AND METHODS USED

Statement and Reasons for Choice

The problem of the investigation. -- "How do various ability groups in a certain eighth grade react to the topics covered by the existing eighth-grade-science curriculum?" was the problem involved.

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Reasons for choice. -- It was chosen because of five reasons, namely: An interest in improving the present course of study, a desire to make the course more interesting and helpful to those whose interests and abilities were in other fields of endeavor or for whom the fundamentals of science were the starting place for a career, to discover total reactions of pupils in three different ability groups to the topics covered, to discover differences (if any) in reactions of boys and girls of like ability, to get reactions as to the interest and usefulness of the different methods used in teaching the subject.

Background Data

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exodus of diversified manufacturing to the South or West.

Most of the inhabitants are American-born and many own their own homes.

The school .-- The Coolidge Junior High School was built in 1926 at a cost of about \$300,000.00. Containing twentyseven classrooms, it is of all brick construction and fairly well equipped. About one-third of the teachers are men. The school houses grades seven, eight, and nine with about five hundred twenty-five as a total enrolment. The Natick school system operates on the 6-3-3- plan. Junior-high-school pupils are placed according to ability in each grade and their first ability group placement is determined from a list of the graduates of each of the ten elementary schools submitted to the junior-high-school principal when school ends in June. Each list is an ability grouping on the basis of the results of the Kuhlmann-Anderson Achievement Tests administered in the elementary schools in the Spring previous to graduation. From these results an achievement quotient is derived and prospective graduates are listed accordingly. Upon receipt of these lists the junior high school principal selected the top four names from each list and assigned them to 7G, the highest ability group. There being ten elementary schools, 7G, therefore, had an initial enrolment of forty pupils. The next four pupils listed were assigned to 7F and so on down to 7B, the lowest division. Usually graduates of the town

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Flexibility of grouping. -- Pupil assignment to an ability group was not a hard and fast affair; upward or downward transfer was made when ability warranted. At the end of the first marking term, eight weeks after school began, report card grades were inspected by the principal. Homeroom teachers were invited to make recommendations for transfer. Pupils failing in two major subjects or more were moved a division lower and a division higher if they received B or A in two or more major subjects. All changes, of course, were governed by the seating capacity of the homerooms involved. Marks were based upon the normal curve of distribution and a five point system was used with no pluses or minuses. A grade of C indicated the average work of the class.

The science curriculum. There was no science work in grade seven except for incidental science of personal hygiene in physical education classes. Science in grade eight was required for all pupils; 3 fifty-minute periods each week with no homework. This work was intended as a foundation course for 9th grade science. Failure to accomplish a passing grade in 8th grade science did not bar a pupil from proceeding in 9th grade science. There was no outside work in eighth-grade-science. Pupils did not have individual texts but used three different books in class as well as a

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well stocked reference shelf. The school had excellent library facilities and pupils were trained to avail themselves of the material there. The course was divided into units; each of which was broken down into subtopics. Major topics were: water, air, fire, rocks and soil, plants, and health. By actual count these major units were handled under sixty-one subdivisions.

Obtaining the Reactions

Method employed and scope of questionnaire .-- The information on reactions of pupils was gathered by means of a questionnaire listing the sixty-one subtopics. This questionnaire consisted of four legal size mimeographed pages. Page one concerned itself with reactions as to the usefulness of each topic with four different choices for checking beside each topic. The four columns were captioned: very useful; useful; of very little use; and no use at all. Page two asked for reactions as to difficulty with four columns captioned: very difficult; difficult; easy; and knew it already. Page two dealt with interest with four columns captioned: very interesting; interesting; of little interest: and disliked the topic. Page four listed the fourteen methods used by the writer in teaching the subject and pupils were asked for their reactions as to interest and usefulness with captions for each as mentioned previously. (a copy of the questionnaire used may be found in the appendix.) well stocked reference shelf. The school had excellent library facilities and pupils were trained to avail themselves of the material there. The course was divided into units; each of which was broken down into subtopics. Major topics were: water, air, fire, rocks and soil, plants, and health. By actual count these major units were handled under sixty-one subdivisions.

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Scope of the questionnaire. The whole year's work was the basis for the checklist and was given three days before school ended in June, 1945. The topics were listed from the teacher's planbook according to their proper sequence. Covering the entire grade of six divisions, one hundred sixty-four pupils, required two days. Each pupil required about forty minutes although no time limit was set. Preliminary remarks were to the effect that this was a cooperative act on the part of the pupils to make the course more helpful for incoming pupils from grade seven.

Coding. -- In the preliminary printed directions pupils were told not to sign their names. Each was asked to write at the top: B or G to identify pupil as to boy or girl, the letter indicating the division, and the numeral denoting the pupil's age. A typical coding would be: GE12 meaning girl in division E and twelve years of age.

Tabulation of results. There being six divisions in the grade the top two, 8G and 8F were considered as the top third of the grade. 8-E and 8-D were assumed to be the middle third with 8-C and 8-B the lower third. Papers were first placed in order according to division with 8-G at the top followed by 8-F, 8-E, 8-D, 8-C, 8-B. Papers in each third were next arranged according to sex with the boys' papers first. Following this came another rearrangement according to age in diminishing order. This was followed by a numbering of all the questionnaires consecutively from

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one to one hundred sixty-four. To assist in keeping the ability groups separate a different color was used in numbering each group. A total of two hundred eleven reactions was asked each pupil. Multiplying this total by one hundred sixty-four meant the tabulation of over thirty-four thousand reactions. This was done upon a master chart ruled horizontally into one hundred sixty-four sections and vertically into seventy-five large columns the first sixty-one of which were subdivided into twelve smaller columns to provide tallying space for the reactions of usefulness, difficulty, and interest. The remaining fourteen were for reactions as to teaching method usefulness and interest. Each of these was ruled into eight smaller columns. Number of vertical columns: eight hundred fortyfour. Upon completion of this, subtotals were found for each reaction in each of the three groups. These totals were then changed to percentages for each group and set up in table form. Chapter two of this paper sets forth in tabular form these figures and describes the significant features of each table shown. Table one shows the age distributions of each of the ability groups by sex.

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Table 1. Age and Ability Distributions of Eighth Grade Science Pupils completing Questionnaires.

					mil nu	710.7	- Enema	6 Date		
Ability Gr	roup	1200	17			n Ye		12	Total	
Upper Third	Boys	_(3)		(6)	2	9	12	1	24	
Upper Third					1	12			32	
									86 5	
Middle Third	d Boys			2 0	6	12	15		35	
Middle Third	d Girls			1	3	17	11		32	
Lower Third				3	7 33.	11	2		23	
Lower Third	Girls		1	16	6	83	05	02	3918 61	
sub-total		14	25	1	.16	63	5	2	43 36	
		a/c	inn	10	ns	776	40	44	09- 00	

Total: 1 7 25 64 64 3 164

though the lovest groups say very little use in this item it easy. The bighest third girls were the only group to a opic very useful. Only has in the whole grade found the m

very difficult.

Table 1. Age and Ability Distributions of Eighth Grade Science Pupils completing Questionnaires.

		878	n Ye	l eg	A		7 -41 Child
Latol	SI	13	14	ge i	16	77	Ability Group
24	1	12	6	2			Upper Third Boys
32		19	12	1			Upper Third Girls
35		15	ST	9	2		Middle Third Boys
32		11	17	3	1		Middle Third Girls
ES		S	LI	7	3		Lower Third Boys
18	S	5	3	9	1	Ţ	Lower Third Girls
200400			*	• • • • • •		1 - 1 - 2 - 2	
164	3	49	49	25	7	ı	Total:

Table 2. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Discussion of the Meaning
of the Term 'Elementary Science'."

Percentages Giving Different Ratings of													
Intelli	and Igence Group		sefu: 3 (3)	lnes: 2 (4)	1 (5)	D: 4 (6)	1ff1 3 (7)	cult; 2 (8)	1 (9)	4 (10)	Inte 3 (11)	erest 2 (12)	1 (13)
Powe	Highest Third	0	79	21	0	4	17	75	4	17	54	29	0
Boys	Middle Third	31	66	3	-	-	4	53	43	9	86	5	0
	Lowest Third	-	9	65	26	0	17	83	-	9	48	43	0
	sub-total	11	44	21	5	1	9	56	16	9	54	19	0
Girls	Highest Third	60	22	13	5	0	9	85	6	6	85	9	0
	Middle Third	3	49	34	16	0	31	66	3	0	28	69	0
	Lowest Third	-	-	50	44	6	17	83	0	0	39	61	0
	sub-total	20	30	14	15	1	16	63	2	2	43	36	1
	Total	31	74	35	20	2	25	119	18	11	97	55	1
Key to	2=	very	ful y lit		use	3= d: 2= es	iffi asy	cult		3= 2=	inter	restin	ng Le inte

Although the lowest groups saw very little use in this item they found it easy. The highest third girls were the only group to consider this topic very useful. Only two in the whole grade found the material very difficult.

Jaege

Table 2. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Discussion of the Meaning
of the Term 'Elementary Science'."

-	erest 2 (12)	3	4 (10)									gence Group	
S±1.	75-7-	1221	1041	whole	Le.	A.I.L.	201.	12/-	Jalan	علالم	121		
0	68	54	17	47	75	17	45	0	21	79	0	Highest	
0	5	98	6	43	53	4	-	_	3	99	31	Middle Third	syot
Ō	हम	84	6	~	83	17	0	56	65	6	-	Lowest	
0	19	54	6	16	56	6	I	5	IS	44	II	Sub-total	
0	6	28	9	9	85	6	0	5	13	22	60	Highest Third	afri
0	69	88	0	3	99	31	0	16	34	64	3	Middle Third	011,000
0	61	39	0	0	83	17	9	44	50	-		Lowest Third	
1	36	43	S	S	63	91	1	15	41	30	08	sub-total	
I	55	79	II	81	611	25	S	09	35	747	31	Total	
Le i	inter estin littl	Asta	=S			res	2= 68	asn	elitie	A III	ver	ratings: 4 3 3 2 2 2 2 2	ey to

Although the lowest groups saw very little use in this item they found it easy. The highest third girls were the only group to consider this topic very useful. Only two in the whole grade found the material very difficult.

Table 3. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "Possible Content of a General
Science Course."

			P	erce	ntage	s Gi	ving	Dif	fere	nt Ra	tings	of	
	x and igence Group (1)		3 (3)	1nes 2 (4)	1 (5)	D 4 (6)	3	cult; 2 (8)	1	4 (10)	Into 3 (11)	erest 2 (12)	(13)
	Highest Third	54	46	0	0	29	46	25	0	42	54	4	0
Boys	Middle Third	6	80	14	0	0	12	74	14	20	74	6	0
	Lowest Third	0	13	87	0	0	13	87	0	0	39	61	0
	sub-total	15	42	25	0	7	18	52	5	17	48	18	0
	Highest												
dwla	Third	53	44	3	0	0	12	82	6	38	50	9	0
Girls	Middle Third	3	82	13	0	0	22	78	0	9	85	6	0
	Lowest Third	0	11	72	17	0	11	89	0	0	56	44	0
	sub-total	18	42	18	3	0	13	67	2	15	53	13	0
	Total:	33	84	43	3	7	31	119	7	32	101	31	0

About half the grade decided that this material was useful. Nearly three-fourths of the grade found the work easy. There is a very close agreement between the boys and girls as to numbers of pupils checking each rating.

Table 3. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "Possible Content of a General

Science Course."

and the second	lo	ings	tsa J	erer	Dift	ring	e Gir	ntage	teore	Pe			
(13)	2 (12)	Inte 3 (11)	(10)	I	culty 2 (8)	3	4	(5)	9	3	14	x and igence Group (1)	ntell
0	47	412	247	0	25	94	62	0	0	46	54	Highest Third	
0	9	47	20	4I	74	SI	0	0	14	08	6	Middle Third	loys
0	61	39	0	0	87	13	0	0	87	13	THE LATER OF	Lowest Third sub-total	
0	. 6	50	38	9	28	12	0	0	3	44	53	Highest	
0	9	85	6	0	78	22	0	0	13	82	3	Middle Third	irls
0	44	56	0	0	68	11	0	71	72	TT	0	Lowest	
0	13	53	15	S	67	13	0	3	3.5	24	18	sub-total	
0	32	TOT	32	7	611	31	7	3	43	#8	33	:LatoT	

About half the grade decided that this material was useful. Wearly three-fourths of the grade found the work easy. There is a very close agreement between the boys and girls as to numbers of pupils checking each rating.

Table 4. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Chemical
Makeup of Water."

			P	ercei	ntage	s Gi	ving	Dif	fere	nt Rai	tings	of	
	ex and ligence Group	U 4	4	3	2	1	4	Interest 4 3 2 1					
1545	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Boys	Highest Third	46	50	4	0	25	50	8	17	8	42	50	0
	Middle Third	0	69	31	0	0	31	60	9	9	63	25	3
	Lowest Third	0	22	78	0	0	35	65	0	0	87	13	0
	sub-total	11	41	31	0	6	31	38	6	5	52	26	1
Ginla	Highest Third	19	47	28	0	19	56	22	3	34	56	6	0
Girls	Middle Third	0	40	60	0	0	28	72	0	0	34	63	3
	Lowest Third	0	22	78	0	0	0	83	17	0	72	28	0
	sub-total	6	32	42	0	6	27	45	4	11	41	27	1
	Total:	17	73	73	0	12	58	83	10	16	93	53	2

A very close agreement between the sexes is apparent. It is hard to understand, however, why upper ability groups should find the work very difficult while the other groups find it easy. All groups found some use for the topic. Greatest agreement was on interest.

Table 4. Opinions of Righth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Chemical
Makeup of Water."

50 0 25 3	(11) 42 63	(10)	6 11 (6)	(8) (8) 8	3 (7) 50 50 31	(6)	(5)	ή (π)	seful 3 (3) 50	4	igence Group (1) Highest Third Middle	
25 3									50	94	Third	Boys
	63	6	9	60	31	0	0				Middle	soos
0 05							0	31	69	0	Dride	
13 0	78	0	0	65	35	0	0	78	SS	0	Lowest	
26 1	52	5	6	38	31	9	0	31	T4	TI	sub-total	
0 0	56	34	3	22	56	61	0	88	47	19	Highest Third	efri
63 3	34	0	0	27	28	0	0	60	04		Middle Third	STITI
0 89	72	0	IT	83	0	0	0	78	SS	0	Lowest	
27 1	Th	II	4	45	75	9	0	24	32	9	sub-total	

A very close agreement between the sexes is apparent. It is hard to understand, however, why upper ability groups should find the work very difficult while the other groups find it easy. All groups found some use for the topic. Greatest agreement was on interest.

Table 5. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels concerning the Usefulness, Difficulty,

and Interest of the topic: "A Study and Discussion of

Matter as a Universal Ingredient."

			P	Percentages Giving Different Ratings of										
Sex Intelli	U:	sefui	lnes:	s 1	D:	iffi 3	cult;	1	4	Interest 3 2 1				
(1	1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
Boys	Highest Third	25	50	21	4	0	42	50	8	13	75	12	0	
	Middle Third	14	69	14	3,	17	49	21	13	14	72	14	0	
	Lowest Third	0	22	78	0	0	26	74	0	0	35	65	0	
Girls	sub-total	11	41	28	2	6	33	36	2	8	51	23	0	
	Highest Third	28	60	6	6	6	41	47	6	34	47	16	3	
	Middle Third	0	60	40	0	0	13	87	0	0	66	34	0	
	Lowest Third	0	17	83	0	0	11	89	0	0	17	78	5	
	sub-total	9	41	29	1	2	19	59	1	11	39	26	2	
	Total	20	82	57	3	8	52	95	3	19	90	49	2	

Only upper groups found this very useful. Three-fourths of all the girls found the item easy. The work was more interesting to upper groups than to lower. Pable 5. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study and Discussion of
Matter as a Universal Ingredient."

	1	nga!	t Rat:	eren	Diff	anin	e Civ	ntage	teons	ď			
	Interest		1	sults S	177	Di t	<u>I</u>	ineni S	erius 3	TU pt	Sex and Intelligence Group		
(23)	(31)	(11)	(01)	(6)	(8)	(7)	(6)	(3)	(4)	(3)	(2)	(1)	
	12	27	1.3	8	50	34		Í,	I3	50	25	Highest Euro	
0	11	72	A.f.	13	21	64	1.7	3	4.5	69	N.	Middle	
0	76	35	0	0	45	26		0	87	22	0	deawo.I DeinM	
	23	53		2	36	38	9	2	89	r.a.	ni	Latot-due	
	16	7.47	18	9	Lin	14	ò	ò	ò	08	82	Alghest Third	
	48	.56		0	78	ET.	0	0	0#	00	0	Middle	
	78	T.Y.L.	0	0	98	11	0	0	88	7.1	0	Lovest	
3	92	39	LI	1.	69	8.0	8	1	99	442	6	Lafot-duz	
2	54	06	19		55	52	3	8	313	\$8	09	lateT	

Only upper groups flound this very useful. Home-fourths of all the sirls found the item eary. The work was more interesting to upper groups than to lower.

Table 6. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Experimentation to Discover
the Different Forms of Matter."

			-										
			P	erce	ntage	s Gi	ving	Dif	fere	nt Ra	tings	of	
	x and igence Group	U:	sefu:	lnes:	s 1	D:	iffi	cult;	7 1	4	Into	erest	1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Daws	Highest Third	33	58	9	0	4	42	50	4	17	67	16	0
Boys	Middle Third	0	20	60	20	19	69	12	0	0	29	66	5
	Lowest Third sub-total	0 8	26	7 4	0	4 8	8 ₃	13	0	0 4	78 44	22	0
24.22	Highest Third	34	60	6	0	6	31	44	19	25	63	12	0
Girls	Middle Third	0	19	72	9	0	72	28	0	0	82	18	0
	Lowest Third sub-total	0	0 25	72 38	28	0 2	11 35	83	6	6	83	11	0
	Total:	19	53	78	13	10	88	57	7	13	105	45	2

The upper level found the item very useful or useful. Almost half the grade found very little use in the work. Majority agreed that the activity was interesting although difficult.

Table 6. Opinions of Bighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Experimentation to Discover
the Different Forms of Matter."

	20	agnit	teR te	ceren	Diff	ring	e Gir	ge	sto	erce	Pe		
I		Jace E											Sex and Intelligence Group
		(11)											(1)
0	16	67	17	ή	50	24	41		0	6	58	33	
2	99	29	0	0	2.2	69	Sī		09	60	09	0	Boys Middle Third
0	99	and the contract			-	4	4	-	-	-			
S	33	44	12	1	.61	63	8		9	04	88	8	Istot-dus .
0	2.2	63	25	13	राम	31	9		0	6	60	34	Highest Third Girls
0	18	28	0	0	28	27	0		6	27	19	0	Madle
0	11	83	9	6	88	35	-	-	28		A	0	
's									** *	-			
2	94	CoT	13	7	57	00	10		13	78	CC	RI	:LstoT

The upper level found the item very useful or useful. Almost half the grade found very little use in the work. Majority agreed that the activity was interesting although difficult.

Table 7. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Demonstrations of
Indestructibility of Matter."

			P	erce	ntages	Gi.	ving	Dif:	fere	nt Rat	tings	of	
Intell:	x and igence Group	4 (2)	3 (3)	lness 2 (4)	1 (5)	(6)	1ff1 3 (7)	cult; 2 (8)	1 (9)	4 (10)	3	2 (12)	1 (13)
Pows	Highest Third	25	54	17	0	4	8	88	0	8	58	34	0
Воуз	Middle Third	20	63	12	5	0	43	57	0	6	71	23	0
	Lowest Third	26	57	17	0	0	16	84	0	0	25	75	0
	sub-total	15	52	12	2	1	21	60	0	4	47	31	0
Girls	Highest Third	66	31	3	0	0	3	88	9	31	69	0	0
GILTS	Middle Third	0	37	63	0	0	57	43	0	3	71	29	0
	Lowest Third	0	11	78	11	0	11	78	11	0	39	61	0
	sub-total	21	25	35	2	0	23	54	4	11	54	17	0
	Total	36	77	47	4	1	44	114	4	15	101	48	0

Greatest agreement is found on difficulty and interest with a majority deciding easy but interesting. Noone, however, disliked the topic.

Table 7. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Demonstrations of
Indestructibility of Matter."

goods of O ale	gence Group	U 4	seful	lness 2	I	D.	1771	cult;	. 7	ħ	Inte	taers	-
()	(1)	St. of St	(8)	The same of the sa	(5)	A TOTAL OF THE PARTY OF THE PAR	(7)	(8)	(6)	(10)	(11)		(13)
oys	Highest Third	25	54	7.7	0	47	8	88	0	8	58	34	Ó
3,01	Middle Third	20	63	12	5	0	43	57	0	9	72	23	0
	Lowest	98	57	27	0	0	16	448	0	0	25	75	0
	sub-total	15	52	12	2	I	21	60	0	1,	47	31	0
irle	Highest	66	31	3	0	0	3	88	6	31	69	0	0
W. da. 40.00	Middle Third	0	37	63	0	0	57	43	0	3	27	29	0
	Lowest	0	11	78	11	0	11	78	11	0	39	61	0
	Sub-total	21	25	35	2	0	23	54	47	II	54	17	0

Greatest agreement is found on difficulty and interest with a majority deciding easy but interesting. Noone, however, disliked the topic.

Table 8. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Study and Demonstrations
of Water's Part in Maintaining Life."

			P	erce	entag	ges	Gi	ving	g Dif	fere	nt Ra	tings	of	
	ex and ligence Gro	up U	sefu 3	lnes			D: 4	iffi 3	cult 2	y 1	4	Int	erest	1
(1	(1)	(2)	(3)	(4)) (5) ((6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Boys	Highest Third	38	54	2 4	4		0	17	71	12	33	54	13	0.0
Doys	Middle Third	43	57	0	0		0	17	83	0	3 0	14	2086	14 0
	Lowest	4		13	0		0	4	87	9	0	17	83	0
	substotal	25	43	4	11	P	0	11	66	6 4	1 8	22	2 51	8 0
Girls	Highest Third	31	63	8.6	3 0		0	19	75	6	6	82	12	0
GILIS	Middle Third	16	75	9	0		0	28	69	3	0	13	87	0
	Lowest Third	0	28	67	5		0	11	78	11	0	22	78	0
	sub-total	15	49	16	1	21.1	0	17	60	5	2	34	45	0
	Total	40	92	20	2		0	28	126	9	10	56	96	0

The tabulation shows a very close agreement of opinion with the largest majority voting easy. Nothing else of significance is shown.

Table 8. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Study and Demonstrations
of Water's Part in Maintaining Life."

I	rest	Inte	4	I	culty 2	iffi	Di		ness 2	seful	T T	Sex and ntelligence Group
(13)	(31)	(II)	(10)	(6)	(8)	(7)	(9)	(5)	(4)	(3)	(2)	(1)
0	13	14	33	12	71	7.7	0	4	4	54	38	Highest Third oys Middle Third
0	83	17	0	9	78	1	0	0	13	83	4	Lowest
0	51	22	8	护	99	II	0	I	4	43	25	sub-total
0	12	82	9	6	75	19	0	0	9	63	31	Highest Third Irls
0	87	13	0	3	69	88	0	0	6	75	91	Middle
0	78	. 22	0	11.	78	11	0	5	67	88	0	Lowest Third
0	45	34	S	5	60	17	0	I	16	64	15	sub-total
45	***	34 56	2 20	9	CONTRACTOR CONTRACTOR	17	0	I S	16	92	15 40	

The tabulation shows a very close agreement of opinion with the largest majority voting easy. Nothing else of significance is shown.

Table 9. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Classroom Experiments and
Study of Wayer in Plant Foodmaking."

	ex and		P	erce	ntage	s Gi	ving	Dif	feren	t Rat	ings	of	
Intel:	ex and ligence Group (1)	(2)	sefu 3 (3)	lnes: 2 (4)		(6)	1ff1 3 (7)	cult; 2 (8)	<u>1</u> (9)	4 (10)	Inte: 3 (11)	rest 2 (12)	<u>1</u> (13)
Boys	Highest Third	25	58	12	5	17	54	29	0	46	37	17	0
boys	Middle Third	0	20	80	0	0	14	69	14	3	63	20	14
	Lowest Third Sub-total	<u>17</u>	83	0	0	0 4	70	30	6	13	13 34	70	<u>13</u> 8
	Highest Third	16	63	18	3	. 0	25	75	0	44	56	0	0
Girls	Middle Third	9	41	50	0	3	75	22	0	0	22	78	0
	Lowest Third	0	22	72	6	0	56	44	0	0	22	72	6
	Sub-total	8	37	32	2	1	42	38	0	14	27	38	1
	Total	18	77	62	3	5	76	74	0	27	61	65	9

Upper groups found greater interest in this item. Opinions bunched up in second and third ratings for usefulness, difficulty, and interest. Dislike was found only in lower ability groups.

Table 9. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Classroom Experiments and
Study of Wayer in Plant Foodmaking."

			P	ercer	tage	s Giv	saiv	Diff	erent	t Ratt	ings c	10	
Intel	ex and Ligence Group (1)			iness 2 (4)			11111			(10)	Inter 3 (11)	S	(13)
Boys	Highest Third	25	58	12	5	77	54	62	0	46	37	7.7	Ö,
0 500	Middle Third	. 0	20	08	0	0	工中	69	机工	3	63	20	45.
	Lowest Third Sub-total	17	83	30	0	0	70	30	0	13	13	70	13
Girls	Highest Third	91	63	18	3	0 ,	25	75	0	林林	56	0	0
beliefe strate for	Middle Third	6	Th	50	0	3	75	22	0	0	22	87	0
	Lowest Third	0	SS	27	9	0	56	गंग	0	0	99	S.Z.	9
	Sub-total	8	37	32	2	I	24	38	0	工作	7'S	38	
	Total	81	64	62	3	2	76	74	0	75	19	65	0

Upper groups found greater interest in this item. Opinions bunched up in second and third ratings for usefulness, difficulty, and interest. Dislike was found only in lower ability groups.

Table 10. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "A Study of the Working of

Nature's Water Cycle."

Se	ex and		1	CYDE	ntag		ring	D1.1	feres	t Rat	ings	0.5	
Intell	igence Group	4	sefu	lnes:	S	D 4	iffi 3	cult;	7	4	Inte	rest 2	3
32150.1.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	-	(12)	(13
Boys	Highest Third	25	58	17	0	0	50	46	4	17	54	17	12
50,5	Middle Third	0	12	74	14	0	14	71	15	23	71	6	0
	Lowest Third	0	9	70	21	0	0	78	22	0	26	70	4
	Sub-total	6	20	46	10	0	17	54	11	12	44	22	2
	Highest Third	6	85	6	0	0	66	34	0	13	82	5	0
irls	Middle Third	0	16	84	0	0	78	53	44	75	50	50	0
	Lowest Third	0	22	72	6	0	28	44	28	0	11	72	17
	Sub-total	2	36	41	1	0	27	35	19	4	44	30	3
	Total	8	56	87	11	0	44	89	30	16	88	52	5

Greatest difficulty with this item was found in the highest groups.

A great majority of the lowest groups found little interest in the work although no one found the work very difficult.

Table 10. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Working of
Rature's Water Cycle."

To.	Ratings	Different	Giving	tages	Fercen

ī		Inter	ţţ.		:ulty				sae S				x and igence Group	
(13)	(31-)	(II)	(01)	(6)	(8)	(7)	(9)	5)	(#) (-)	(3)	(1)	100 - 100 0 M, 100 0 M, 100 0 M
12	TI	54	17	4	94	50	0	0	7	I (38	25	Highest Third	Boys
0	9	17	23	15	71	14	0	4.	Ε 4	7	J.	0	Middle	a (.00.
1	.70	98	0	SS	78	0	0		3 0	LI	3_	0	Lowest Third	
2	22	44	SI	II	54	17	0	0.	1 0	4 (20	9	Sub-total	
0	5	98	13	0	34	66	0	0	6		8	9	Highest Third	efatt
0	50	50	0	4147	53	8	0	0	4	8 8	16	0	Middle Third	
7.5	27		0	88	144	95	0	6	9		38	0	Lowest Third	
	30	44	1	12	35	TS	0			P.	35	5	Sub-total	
3	52	88	9I	30	89	44	0	-	C Y	8	56	8	Total	

Greatest difficulty with this item was found in the highest groups.

A great majority of the lowest groups found little interest in the work sithough no one found the work very difficult.

Table 11. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty, and
Interest of the topic: "A Study and Discussion of the
Sun."

			P	erce	ntage	s Gi	ving	Dif	fere	nt Ra	tings	of	
The second second	ex and ligence Group	4	sefu	lnes 2 (4)	1	4	3	cult;	1	(70)	3	erest	1 (72)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(15)	(13)
Dawa	Highest Third	42	54	4	0	13	54	33	0	38	62	0	0
Boys	Middle Third	0	23	63	14	6	83	11	0	12	86	2	0
	Lowest Third	0	13	78	0	9	70	21	0	26	74	0	0
	Sub-total	10	26	41	5	7	58	17	0	19	63	1	0
Cimia	Highest Third	28	72	0	0	13	78	9	0	75	25	0	0
Girls	Middle Third	2:0	16	75	0	72	28	70	0	75	19	0	0
	Lowest Third	0	0	78	22	6	61	33	0	11	78	11	0
	Sub-total	9	29	39	4	28	44	8	0	50	26	2	0
	Total	19	55	80	9	35	102	25	0	69	89	3	0

Although a majority found the work difficult, almost as many saw little use for the material but found it interesting. Greater difficulty was found by the middle third girls.

Table 11. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty, and
Interest of the topic: "A Study and Discussion of the
Sun."

			P	10016	ntage	s Gi	gniv	Diff	rerer	tsA j	ings	20	
	ex and Ligence Group	ų U	sefu		3	D,	1111		Ī	4	Inte	rest	ī
[)	(1)	(8)	(8)	(4)	(5)			(8)	(6)	(01)	(11)	(12)	(13)
TO SHOW IN	Highest Third	42	54	4	0	IS	54	33	0	38	62	0	0
Syc	Middle	0	23	63	14	9	83	II	0	12	86	S	0
	Lowest	0	13	78	0	2	70	_IS	0	26	47	0	0
2	Sub-total	1.0	26	Th	5	7	58	77	0	19	63	I	0
afai	Highest Third	28	27	0	0	13	87	6	0	75	25	0	0
G.L. L.J.	Middle	0	16	75	0	27	28	0	0	75	19	0	0
	Lowest Third	0	0	87	SS	9	63	33	0	11	87		0
Su	Sub-total	2	29	32	4	89	44	8	0	50	26	S	0
	Total	19	55	08	6	35	201	25	0	69	68	3	0

Although a majority found the work difficult, almost as many saw little use for the material but found it interesting. Greater difficulty was found by the middle third girls.

Table 12. Opinions of Eighth-grade Boys and Girs of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "A Study of the Earth and

Its Relation to Other Heavenly Bodies."

			P	ercei	ntage	s Gi	ving	Dif	fere	nt Rai	tings	of	
	ex and ligence Group	U:	sefu	lness	1	D:	iffi 3	cult;	7 1	4	Inte	erest	1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Boys	Highest Third	50	50	0	0	0	25	67	8	50	42	0	0
	Middle Third	63	31	3	0	0	14	74	12	23	74	3	0
	Lowest Third	14	52	39	5	0	22	48	0	0	83	0	0
	Sub-total	35	35	10	1	0	15	61	6	24	55	1	0
irls	Highest Third	88	12	0	0	63	31	6	0	53	47	0	0
11113	Middle Third	22	75	3	0	0	28	72	0	9	78	9	4
	Lowest Third	0	50	50	0	0	11	83	6	22	67	11	0
S	ub-total	35	37	10	0	20	21	38	1	24	51	4	1
	Total	70	72	20	1	20	36	99	7	48	106	5	1

Only the upper level girls considered this work very difficult.

Majorities considered the item easy but interesting.

Table 12. Opinions of Eighth-grade Boys and Girs of Different

Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Earth and

Its Relation to Other Heavenly Bodies."

Percentages Giving Different Ratings of

	jest S	Inte	41	I.		iffic	D:		ness 2	eful	eU 4	Sex and Intelligence Group
KURBING	(31)	encountries oppose	HOSE PRODUCTION	TO SERVICE COMP.	CONTRACTOR OF THE	LOBOURN LO	AND THE PERSON NAMED IN	(5)	(4)	(3)	CONTRACTOR CO.	(1)
0	0	247	50	8	67	25	0	0	0	50	50	
0	3	47	23	12	47	41	0	0	3	31	63	Boys Middle Third
0	0	83	0	0	84	22	0	5	39	52	4	Lowest
0	Ţ	55	49	6	51	15	0	1	OL	35	35	Sub-total
0	0	4.11	53	0	6	31	63	0	0	12	88	Highest Third Girls
#	6	78	6	0	27	28	0	0	3	75	SS	Middle
0		67	SS	9	83	II	0	0	50	50	0	Jaewoll Dring
1	4	51	45	1	38	IS	os	0	10	37	35	Sub-total
I	5	301	48	7	66	36	20	I	00	72	07	Total

Only the upper level girls considered this work very difficult. Majorities considered the item easy but interesting.

Table 13. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Moon and
Its Effects Upon the Earth."

Lanco La	1)	(2)	3 P	erce	ntage	es Gi	vin	g Dif	fere	nt Ra	tings	of	(33)
	ex and ligence Group	4 (2)	sefu 3 (3)	lnes 2 (4)	s (5)	D. 4	199:	cult	y (9)	(10)	Int. 3 (11)	erest 2 (12)	(13)
Boys	Highest Third	29	54	17	0	0	8	83	9	58	33	9	0
	Middle Third	0	6	69	25	0	9	74	17	3	80	17	0
	Lowest Third	0	17	78	5	0	39	61	0	0	70	30	0
	Sub-total	7	19	46	10	0	14	60	7	15	52	15	0
Girls	Highest Third	6	50	44	0	0	3	60	37	0	22	72	6
411.12	Middle Third	0	9	78	13	0	3	69	28	0	53	47	0
	Lowest Third	0	22	72	6	0	33	67	0	0	78	22	0
	Sub-total _	2	23	52	5	0	8	53	19	0	38	41	1
	Total -	9	42	98	15	0	22	113	26	15	90	56	1

Half the upper third boys considered this item very interesting.

All groups found it easy although a majority considered it of little use.

Table 13. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Moon and
Its Effects Upon the Earth."

	20	tings	at Ra	fere	g Dif	gniv	s Gi	ntage	erce	q		
(ED)	daere (<u>12</u>)	Inte	(<u>TQ</u>)	(<u>§</u>)	cult 2 (8)		(g)	(1)	Ines (4)	seru 3 (3)	(Z) 10 10	Sex and Intelligence Group (1)
0	6	33	58	6	83	8	0	0	7.7	54	29	Highest Boys Third
0	27	08	3	7.7	47	6	0	25	69	9	0	Middle Third
0	30	70	0	0	19	39	0	5	87	77	0	Lowest
0	15	52	15	7	60	中工	0	10	94	19	7	Sub-total
9	27	22	0	37	60	3	0	0	村村	50	9	Highest Third Girls
0	7.42	53	0	28	69	3	0	13	87	6	0	Middle
0	22	78	0	0	73	33	0	. 6	272	22	0	Lowest
	Th	38	0	19	53	8	0	5	52	23	S	Sub-total
£	56	90	15	26	113	SS	0 -	15	98	24	9	- IstoT

Half the upper third boys considered this item very interesting.

All groups found it easy although a majority considered it of little

Table 14. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "A Study of the Other Planets."

			P	erce	ntage	s Gi	ving	Dif	fere	nt Ra	tings	of	
	ex and ligence Group	4	sefu	2	1	4	1111	cult;	1	nt Ra	Into	erest	1
Intel	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13
Boys	Highest Third	46	50	4	0	0	33	63	4	38	42	13	7
Bojs	Middle Third	0	26	74	0	6	91	3	0	3	78	16	3
	Lowest Third	0	4	70	26	0	70	30	0	0	22	78	0
	Sub-total	12	14	34	3	2	53	25	1	10	40	27	5
Girls	Highest Third	0	75	25	0	0	31	63	0	16	84	0	0
03910	Middle Third	0	56	41	0	0	71	29	0	0	41	53	6
	Lowest Third	0	6	78	16	0	44	56	0	0	22	67	11
	Sub-total	0	35	35	1	0	43	37	0	5	43	29	4
	Total	12	49	69	4	2	96	62	1	15	83	56	9

The same opinion of usefulness by upper third boys is shown here as in the previous table. There is a close agreement in numbers of pupils choosing the other ratings.

Table 14. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Other Planets."

	10	egald	te Rat	ierel	Diff	gair	s Gir	ntage	erce	P			
(ET) T	S	Inte 3 (11)	47	I	9	3	4	s (5)	S	_3_	4	Sez and telligence Group	al
7	13	24	38	ħ	63	33	0	0	ij.	50	94	Highest	Bo
3	91	78	3	0	3	16	9	0	74	26	0	Middle	DO
0	78	SS	0	0	30	70	0	26	70	4	0	Lovest	
5	73	04	10	I	25	53	S	3	34	TH	12	Sub-total	
0	0	48	16	0	63	31	0	0	25	75	0	Highest Third	G1:
9	53	Th	0	0	99	71	0	0	Th	56	0	Middle	ada tor
11	67	22	0	0	56	44	0	16	78	9	0	Lowest Third	
4	29	43	2	0	37	43	0		35	35	0	Sub-total	
6	56	83	15	1	62	96	S	4	69	49	12	Total	,

The same opinion of usefulness by upper third boys is shown here as in the previous table. There is a close agreement in numbers of pupils choosing the other ratings.

Table 15. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study and Discussion of
the Content and Behavior of the Atmosphere."

	ex and ligence Group	U:	sefui	lnes	s 1	D:	1111	cult;	7	4	Inte	erest	1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)		(13)
	Highest Third	33	67	0	0	0	38	58	4	13	67	20	0
Boys	Middle Third	26	74	0	0	17	83	0	0	0	23	71	6
	Lowest	0	26	74	0	0	48	44	8	0	30	70	0
	Sub-total	17	31	17	0	6	49	28	3	3	31	45	2
irls	Highest Third	3	44	38	15	0	19	75	0	16	69	15	0
ITLIS	Middle Third	0	44	56	0	22	69	9	0	0	28	63	9
	Lowest Third	0	17	56	27	0	17	78	5	0	33	67	0
	Sub-total	1	31	29	10	7	31	40	1	5	37	33	2
	Total	18	62	46	10	13	80	68	4	8	68	78	4

Upper and middle third boys consider the item more useful than do the girls although middle group boys and girls considered the work difficult. Only upper groups voted the item interesting.

Table 15. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study and Discussion of
the Content and Behavior of the Atmosphere."

1	rest	Inte	4		sulty 2	iffic	Di	1	ines:	eful 3		ex and ligence Group	
(13	-	(11)	(10)		(8)	(7)	(9)	(5)	(4)	(3)	(3)	(1)	-
0	20	67	13	ħ	58	38	0	0	0	67	33	Highest Third	oys
9	73	23	0	0	0	83	17	0	0	47	26	Middle	
0	70	30	0	8	市市	84	0	0	却了	26	0	Lowest	
S	54	31	3	3	28	64	9	0	17	31	77	Sub-total	
0	15	69	16	0	75	.61	0	15	38	市市	3	Highest Third	alti
6	63	88	0	0	6	69	22	0	56	朴朴	0	elbbim bridt	6122 600
0	67	33	0	2	78	37	0	TS	56	77	0	Lowest Third	
9	33	37	_5	1	04	31	7	0.0	29	31	I	Sub-total	
4	78	68	8	ħ	68	08	13	01	94	62	18	Istof	

Upper and middle third boys consider the item more useful than do the girls although middle group boys and girls considered the work difficult. Only upper groups voted the item interesting.

Table 16. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Effects of
Air Pressure."

			P	erce	ntage	s Gi	ving	Dif	fere	nt Rai	tings	of	
	ex and ligence Group	U:	sefu	lnes:	3	D 4	1ff1	cult;	1	4	Into	erest	1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Boys	Highest Third	75	25	0	0	0	79	21	0	54	33	13	0
Doys	Middle Third	9	88	3	0	0	75	25	0	13	75	12	0
	Lowest Third	4	61	35	0	0	74	25	0	13	83	14	0
	Sub-total	22	48	12	0	0	64	18	0	18	57	5	0
Girls	Highest Third	28	63	9	0	0	38	62	0	82	18	0	0
GILIS	Middle Third	6	69	25	0	0	69	31	0	12	69	19	0
	Lowest Third	0	17	83	0	0	33	67	0	0	56	44	0
	Sub-total	11	47	13	0	0	42	40	0	30	40	12	0
	Total -	33	95	25	0	0	106	58	0	48	97	17	0

Upper third boys found this subject very useful and very interesting.

Lower third girls saw little use in the material. More boys than girls found the work difficult. Among the girls most of the upper third girls found the item very interesting although no one judged the work useless, very difficult, or disliked it.

Table 16. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Effects of
Air Pressure."

	taene	Inte	ħ	I	eultz 2	1111	D	I	iness 2	seful 3	T U	ex and Ligence Group	
[]	(31)	(II)	(10)	(6)	(8)	(7)	(9)	(5)	(4)	(3)	(2)	(1)	*******
	13	33	54	0	21	29	0	0	0	25	75	Highest Third	Parente S
	12	75	13	0	25	75	0	0	3	88	6	Middle	syo
-	北	83	13	0	25	47	0	0	35	19	4	Lowest	
	5	57	81	0.	18	49	0	0	12	84	22	Sub-total	
	0	18	82	0	62	38	0	0	. 6	63	89	Highest Third	alula
	19	69	12	0	31	69	0	0	25	69	9	elbbim bridT	64.74
proprint and	村村	56	0	0	67	33	0	0	83	77	0	Lowest	
	12	04	30	0	04	94	0	0	13	74	11	Sub-total	
	7.7	70	48	0	58	901	0	0	25	95	33	Total -	

Upper third boys found this subject very useful and very interesting.

Lower third girls saw little use in the material. More boys than girls found the work difficult. Among the girls most of the upper third girls found the item very interesting although no one judged the work useless, very difficult, or disliked it.

Table 17. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "Study and Experimentation

of the Role of Air in Supporting Combustion."

			P	erce	ntage	s Gi	ving	Dif	fere	nt Ra	tings	of	
	x and igence Group	4 (2)	Jsefu 3) (3)	lnes 2 (4)	s 1 (5)	D 4 (6)	iffi 3 (7)	cult; 2 (8)	y (9)	<u>4</u> (10)	Into 3 (11)	erest 2 (12)	<u>1</u> (13)
Boys	Highest Third	17	75	8	0	0	29	63	8	17	71	12	0
Doys	Middle Third	17	80	3	0	0	23	71	6	20	80	0	0
	Lowest Third	0	35	65	0	26	70	4	0	4	83	13	0
S	ub-total	10	54	17	0	6	31	41	5	12	64	6	0
Girls	Highest Third	16	84	0	0	0	16	82	2	13	75	12	0
dir in	Middle Third	16	75	0	0	9	41	44	6	0	44	56	0
	Third Lowest Third		6	56	38	44	86	0	0	17	83	0	0
S	ub-total _	10	52	13	7	11	28	40	2	7	63	12	0
	Total -	20	106	30	7	17	59	81	7	19	127	18	0

Here we find not only very close agreement among sexes of each ability group, but also a similar likeness of opinion between the boys and girls of the entire grade. Decided majorities voted the work very useful and interesting.

Table 17. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Study and Experimentation
of the Role of Air in Supporting Combustion."

	20	tings	ıt Rat	erer	Diff	gniv	s Gi	ntage	erce	P.		*
(13)	erest 2 (12)	Inte	(10)	(6) T	culty 2 (8)	1ff1 3 (7)	(6)	(5)	Lnes: 2 (4)	sefui 3	(S) n	Sex and Intelligence Group (1)
0	12	77	17	8	63	29		0	8	75	77	Highest Third
0	0	08	09	9	71	23	0	0	3	08	71	Boys Middle Third
0	1.3	83	4	0	4	70_	26	0	65	35	0	Lowest Third
0	9	64	12	5	14	31	6	0	17	54	10	Sub-total
0	12	75	13	S	82	16	0	0	0	48	91	Highest Third Girls
0	56	hir	0	9	44	工业	6	0	0	75	91	Middle Third
0	0	83	17	0	0	86	村村	38	56	9	0	Lowest Third
0	12	63	7	2	04	28	11	T	13	52	10	Sub-totel
0	31	127	19	7	18	59	17	7	30	106	05	- LetoT

Here we find not only very close agreement among sexes of each ability group, but also a similar likeness of opinion between the boys and girls of the entire grade. Decided majorities voted the work very useful and interesting.

Table 18. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty, and

Interest of the topic: "Classroom Experiments in

Preparing and Discovering Qualities of Oxygen."

	,		P	erce	ntage	es Gi	ving	Dif	fere	nt Ra	tings	of	
	ex and ligence Group	4	3	lnes:	1	4	iffi 3	2	1	4	3	erest	1
	(1)	(5)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Boys	Highest Third	33	50	17	0	0	63	33	4	54	29	17	0
Doys	Middle Third	6	37	57	0	40	53	7	0	14	86	0	0
	Lowest Third	0	39	61	0	30	70	0	0	9	70	21	0
	Sub-total	10	34	38	0	21	50	10	1	20	53	9	0
Girls	Highest Third	0	66	34	0	75	25	0	0	19	72	9	0
GIFIS	Middle Third	0	44	53	3	19	78	3	0	22	75	3	0
	Lowest Third	0	17	83	0	39	61	0	0	6	88	6	0
	Sub-total	0	38	42	1	37	44	1	0	14	63	5	0
,	Total -	10	72	80	1	58	94	11	1	34	116	14	0

Highest opinions of the usefulness of this topic are held by upper third groups with greatest difficulty being experienced by upper third girls. In all other choices we see a close agreement among the groups and sexes. Table 18. Opinions of Bighth-grade Boys and Cirls of Different
Ability Levels Concerning the Usefulness, Difficulty, and
Interest of the topic: "Classroom Experiments in
Preparing and Discovering Cuchities of Omygen."

	30	tings	all th	iara'	1110	Surv	did a	ntage	erec			
I	rest 2	Inte 3	4	Į.	eulty S	tild	D:	I	senI S	e22	U 4	Ber and Intelligence Group
		(II)	(10)				-			(3)	(3)	(1)
0.1	7.7	29	54	#	334		0	0	7.5		33	Highest Third Boys
0	0		iri	O	7	53	40	.0	57	37	5	Middle
0	ts.	70	2	0	0	05	08:	0	19	29	0	Lowest
0	6	53	09	1	10	56	12	ō	38	48	0.0	Sub-total.
ō		72	19			53	21	0	ME	66		JackylH bridT alvid
0		75	SS	0		78	61.	5.6	53	trit	0	elfölM byld
0	9	88	9	0	0	ी	39	0	88	T.I.	0	daevol DaldT
0	3	63	45	0	1	中市	372	I	84	38	0	Sub-total
0	Tr	116	48	I	11	116	88	1	08	72	10	- IstoT

Highest opinions of the usefulness of this topic ere held by upper third groups with greatest difficulty being experienced by upper third girls. In all other choices we see a close agreement among the groups and seres.

Table 19. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty

and Interest of the topic: "Experiments to Discover Behavior of

Air Around a Fire."

		100	P	erce	ntage	s Gi	ving	Dif:	fere	nt Ra	tings	of	
	ex and Ligence Group) <u>4</u>	Usefu 3	lnes:		D 4	iffi 3	cult;		4	Into	erest	1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Boys	Highest Third	25	75	0	0	0	13	83	4	29	46	25	0
2035	Middle Third	3	57	34	6	3	71	26	0	9	82	9	0
	Lowest Third	13	52	35	0	17	78	5	0	13	74	13	0
	Sub-total	10	50	20	2	5	46	31	1	13	55	14	0
Girls	Highest Third	13	72	15	0	0	38	62	0	19	72	9	. 0
GILIS	Middle Third	16	84	0	0	9	75	16	0	19	78	3	0
	Lowest Third	0	39	61	0	17	78	5	0	6	78	16	0
	Sub-total	9	57	14	0	6	50	21	0	13	62	7	0
	Total -	19	109	34	2	11	96	52	1	26	117	21	0

All groups and both sexes are very much in agreement/this item with majorities deciding: Useful, difficult, and interesting.

Table 19. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty

and Interest of the topic: "Experiments to Discover Behavior of

Air Around a Fire."

	20	tings	eA to	Perer	Diff	ring	s Giv	ntage	ercer	9			
	teere	Inte	ħ		culty		D.		Ines	isefu 3	1/4	ex and ligence Group	
(13)	(12)	(11)	(01)	(6)	(8)	(7)	(9)	(5)	(4)	(8)	(3)	(I)	-
0	25	46	62	4	83	13	0	0	0	57'	25	Highest Third	Boys
0	6	28	6	o	26	27	3	6	34	57	3	Middle Third	agou
0	2.3	447	13	0	5	87	77	0	35	52	13	Lowest	
0	Tr	55	13	1	31	94.	5	S	20	50	10	Sub-total	
0	6	27	19	0	62	38	0	0	15	72	13	Highest Third	Girls
0	3	87	19	0	16	75	6	0	0	48	16	Middle Third	AT.TTA
0	16	78	9	0	5	87	77	0	61	39	0	Lowest Third .	
0	7	62	13	0	21	50	9	0	11	57	9	Sub-total	
0	21	717	26	I	52	96	II	S	34	601	61	- LetoT	,

All groups and both sexes are very much in agreement/this item with majorities deciding: Useful, difficult, and interesting.

Table 20. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Classroom Compilation of
Rules for Safety in Regard to Control of a Fire."

			P	erce	ntage	s Gi	ving	Dif	fere	nt Ra	tings	of	
	x and igence Group (1)	4 (<u>2</u>)	sefu 3 (3)	lnes 2 (4)	s 1 (5)	D 4 (6)	1ff1 3 (7)	cult 2 (8)	y 1 (9)	<u>4</u> (10)	Int 3 (11)	erest 2 (12)	<u>1</u> (13)
Boys	Highest Third	54	42	4	0	33	50	4	13	17	63	20	0
Doys	Middle Third	29	71	0	0	3	23	71	3	12	80	8	0
	Lowest Third	0	26	74	0	0	17	66	17	0	65	35	0
	Sub-total	23	42	17	0	9	24	42	8	8	58	15	0
Girls	Highest Third	56	38	6	0	31	41	56	0	25	72	3	0
	Middle Third	3	50	47	0	0	41	56	3	13	72	15	0
	Lowest Third	0	17	83	0	0	83	17	0	0	13	83	0
	Sub-total	19	31	32	0	1	41	38	1	12	49	21	0
	Total -	42	73	49	0	10	65	80	9	20	107	36	0

Highest opinions of usefulness were held by upper third groups with lowest opinions found in the lower third. This work presented the greatest difficulty to upper third boys. Least interest was found by lower third girls.

Table 20. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Classroom Compilation of
Rules for Safety in Regard to Control of a Fire."

	20	agait	nt Ra	ferer	Dif	gaiv	s Gi	ntage	erce	P			
	trest	Inte	47	T.	cult 2	1111	D:	3	lnes:	sefu 3	U.	Sex and lligence Group	
(13)	(12)	(11)	(10)	(6)	(8)		(9)	(5)	(4)	(3)	(2)	(1)	5 4 0 1 0 ×
0	09	63	17	13	47	50	33	0	11	42	54	Highest Third	Barra
0	8	08	12	3	71	23	3	0	0	TZ,	53	Middle Third	Boys
0	35	65	0	7.5	99	17	0	0	47	26	0	Lowest Third	
0	15	5.8	8	8	42	45	6	0	17	42	23	Sub-total '	
0	3	72	25	0	56	Th	3	0	9	38	56	Highest Third	Cirl
0	15	27	13	3	56	Tή	0	0	74	50	3	Middle Third	
0	83	13	0	0	7.5	83	0	0	83	17	0	Lowest Third	
0	IS	64	12	1	38	TH.	I	0	32	31	19	Sub-total .	
0	36	107	00	0	08	55	0.0	0	110	73	LO I	- fetom	

Highest opinions of usefulness were held by upper third groups with lowest opinions found in the lower third. This work presented the greatest difficulty to upper third boys. Least interest was found by lower third girls.

Table 21. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "A Study of Elements as the

Ingredients of Substances."

			P	erce	ntage	es Gi	ving	Diff	ferei	nt Rat	tings	of	
	k and Igence Group	U	sefu	lnes	s 1	D:	iffi 3	culty 2	1	4	Inte	erest	1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Highest Group	25	67	8	0	0	79	21	0	29	63	8	0
Boys .	Middle Third	0	9	66	25	60	37	3	0	0	17	77	6
	Lowest Third	0	0	22	78	70	30	0	0	0	57	43	0
	Sub-total	6	19	30	27	28	48	5	0	7	34	38	2
	Highest Third	25	66	6	3	31	60	9	0	28	53	16	3
Girls	Middle Third	0	0	31	69	66	34	0	0	0	31	69	0
	Lowest Third	0	0	22	78	11	89	0	0	0	50	50	0
	Sub-total	8	21	15	37	33	46	2	0	9	36	36	1
	Total -	14	40	45	64	61	94	7	0	16	70	74	3

Only upper ability groups judged this material of any great usefulness. Lower groups considered the item of no use at all. One fact stands clear: that lowest third girls experienced less difficulty than middle group grls. Almost half the grade considered the topic useless and difficult. Table 21. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Elements as the
Ingredients of Substances."

	no	sings	nt Ref	erei	Diff	gniv	s Giv	ntage	erce	Pe		
1 (13)	2 2 (12)	Inte	(0T) #	<u></u>	S	iffi(3)	4	. I	2 (4)	3 (3)	4	Sex and Intelligence Group (1)
1011	1-241	1-5-6/	(02)	101	701	(1)	(0)	161	(17)	10/	121	
0	8	63	29	0	21	79	0	0	8	67	25	Highest Croup
9	77	77	0	0	3	37	60	25	99	9	0	Boys . Middle Third
0	£4	57	0	0	0	30	70	87	SS	0	0	Lowest
S	38	34	7	0	5	84	28	75	30	19	9	Istot-du8
3	16	53	89	0	6	60	31	3	9	99	25	Highest Milrd
0	69	31	0	0	0	34	99	69	31	0	0	Girls Middle Third
0	50	50	0	0	0	68	11	78	22	0	0	Lowest
	36	36	9	0	3	94	33	37	15	IS	8	Sub-total
3	47	70	16	0	7	46	61	46	54	0#	4I	- IstoT

Only upper ability groups judged this material of any great usefulness. Lower groups considered the item of no use at all. One fact stands clear: that lowest third girls experienced less difficulty than middle group gris. Almost half the grade considered the topic useless and difficult.

Table 22. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "A Study of the Importance of

Proper Humidity in the Home."

			P	erce	ntage	s Gi	ving	Dif	fere	nt Ra	tings	of	
	ex and igence group	4 (<u>2</u>)	sefu 3 (3)	1nes (4)	s (5)	(6)	iffi 3 (7)	cult 2 (8)	y (9)	(1 <u>0</u>)	13 (11)	st 2 (12)	<u>(13)</u>
	Highest Third	25	63	12	0	0	26	75	0	17	66	17	0
Boys	Middle Third	29	71	0	0	6	80	14	0	0	31	66	0
	Lowest Third	0	13	65	22	39	61	0	0	0	52	48	0
	Sub-total	16	43	16	5	11	48	23	0	4	38	39	0
	Highest Third	34	66	0	0	0	22	60	18	50	50	0	0
Girls	Middle Third	0	38	56	6	41	59	0	0	0	9	78	13
	Lowest Third	0	0	22	78	0	78	17	5	11.	72	17	0
	Sub-total	11	33	22	15	14	40	22	5	18	30	28	3
-	Total -	27	76	38	20	25	88	45	5	22	68	67	3

Highest ability groups found this most useful, easy and interesting. Heavy majorities of each sex favored second and third ratings of usefulness, difficulty, and interest.

Table 22. Opinions of Eightin-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Importance of
Proper Humidity in the Home."

		-				ALL THE RESERVE	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	100 10 10 10 10 10 10 10 10 10 10 10 10					
	20 8	enital	I jus	lffer	ed go	ivif	ges (enta	Perc			bas xec	
1		Inter 3	<u>or) (</u>	t,y	Eyot'		2) (fulne 3 2 8) (4	Use	(3) _	111gence grou	Inte
1041			17	0	75	26	0	0	12	63	25	Highes	
0	7.7	99				08	9	0	0	71	29	Middle	Boys
0	99	31	0		九工				65	13	0	Lowest	
0	48	52	0	0	0	84	39	5	16	43	16	Sub-total	
0	39	38	47	0	23				^	66	34	Highest Third	
0	0	50	50	18	60	22	0	0	0			Middle	Girls
13	78	6	0	0	0	59	工力	9	56	38	0	Mird Lowest	
	~	27		5	7.1	87	0	87	SS	0	0_	batdT.	
_0	27 28	30	28	5	SS	04	#I	15	<u> </u>	33			
3	67	89	22	5	15	88	25	09	38 8	76	7'S	Totel -	

Highest ability groups found this most useful, easy and interesting. Heavy majorities of each sex favored second and third ratings of usefulness, difficulty, and interest.

Table 23. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "Construction of a

Hygrometer to Determine Home Humidity."

			P	erce	ntage	s Gi	ving	Dif	ferei	nt Rat	tings	of	
	ex and ligence Group	4	sefu	lnes:	s 1	D:	iffi 3	cult;	1	4	Inte	erest	1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Highest Third	25	54	21	0	8	50	42	0	4	46	46	4
Boys	Middle Third	3	83	14	0	0	26	69	0	12	80	8	0
	Lowest Third	0	35	65	0	22	74	0	0	4	57	39	0
	Sub-total	7	50	24	0	7	38	35	0	6	52	22	1
	Highest Third	6	34	41	19	56	28	16	0	0	28	63	9
Girls	Middle Third	0	47	53	0	3	34	60	3	0	9	82	9
	Lowest Third	0	11	44	44	11	72	17	0	0	72	28	0
	Sub-total	2	28	38	13	21	33	26	1	0	25	51	6
	Total -	9	78	62	13	28	71	61	1	0	77	73	7

Only six boys in the entire grade of one hundred sixty-four pupils found this very interesting. Second and third ratings received seven-eighths of all the votes.

Table 23. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Construction of a
Hygrometer to Determine Home Humidity."

	lo	agni	teX di	erei	piei	ring	s Giv	ntage	erce	P		
I	rest 2	Inte	ή	1	enIty 2	lff1c	Di 4	1	lnesı 2	sefu.	u #	Sex and Intelligence Group
(13)	(12)	(11)	(10)	(8)	(8)	(7)	(9)		(4)	(8)	(2)	(1)
4	94	46	17	0	24	50	8	0	IS	54	25	Highest Third
0	8	08	12	0	69	26	0	0	14	83	3	Boys Middle Third
0	39	57.	4	0	0	47	22	0	65	35	0	Lovest Third
I	22	52	9	0	35	38	7	0	49	50	7	Sub-total
6	63	28	0	0	16	28	56	19	TH	34	9	Highest
6	82	6	0	3	60	34	3	0	53	74	0	Hrls Middle Third
0	89	72	0	0	17	72	II	44	44	II	0	Lowest Third
9	51	25	0		98	33	IS	13	38	88	8	Sub-total
7	73	77	0	T	61	71	88	13	62	87	6	- IstoT

Only six boys in the entire grade of one hundred sixty-four pupils found this very interesting. Second and third ratings received seven-eighths of all the votes.

Table 24. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Commercial Air
Conditioning."

			P	ercei	ntage	s Gi	ving	Dif	fere	nt Ra	tings	of	
	ex and Ligence Group	4	sefu.	2	1	4	3	cult;	1	4	3	erest	1 (7.0)
-	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(14)	(11)	(12)	(13)
	Highest Third	42	54	0-	24	0	33	50	7	25	67	4	4
Boys	Middle Third	23	77	0	0	0	23	77	0	9	82	9	0
	Lowest Third	22	74	4	0	48	52	0	0	0	26	61	13
	Sub-total	23	57	1	1	11	28	39	2	9	52	18	4
	Highest Third	41	47	12	0	0	28	60	12	19	75	3	0
Girls	Middle Third	50	50	0	0	9	57	34	0	9	53	26	12
	Lowest Third	17	72	11	0	11	72	17	0	0	78	22	0
	Sub-total	32	44	5	0	5	42	31	3	9	57	14	2
Tot	al -	55	101	6	1	16	70	70	5	18	109	32	6

All of the Middle Third girls found this topic useful or very useful. Greatest difficulty was experienced by the lowest third groups while upper groups found the greatest interest.

Table 24. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Commercial Air
Conditioning."

	20	agnia	at Rat	erer	Diff	gaiv	es Giv	etage	ercer	Pe		
£	jeone	3	4	£	eulty 2	3	1	I	S		#	Sex and Intelligence Group
(13)	(12)	(II)	(EL)	(6)	(8)	(7)	(9)	(5)	(4)	(3).	(2)	(1)
ħ	47	67	25	7	50	33	0	17	-0	54	24	Highest Third
0	6	82	6	0	2,2,	23	0	0	0	77	23	Boys Middle Third
13	61	26	0	0	0	52	84	0	11	74	22	Jawo.I Third
4	81	52	6	S	39	28	II	I	I	57	23	Sub-total
0	3	75	51	12	60	88	0	0	22	2.18	工材	Highest
3.2	26	53	6	0	34	57	6	0	0	50	50	Girls Middle Third
0	SS	78	0	0	77	72	T.E	0	11	72	7.7	Lowest
S	工作	57	9	3	31	24		0	5.	44	32	Sub-total
9	32	501	18	5	70	70	16	1	9	IOI	55	Total -

All of the Middle Third girls found this topic useful or very useful. Greatest difficulty was experienced by the lowest third groups while upper groups found the greatest interest.

Table 25. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the Topic: "Experiments With a Tire

Pump to Determine Compressibility of Air."

			P	erce	ntage	s Gi	ving	3 Dif	fere	nt Rai	tings	of	
Intell	x and igence Group	4 (2)	3 (3)	lnes 2 (4)	s 1 (5)	(6)	(7)	cult 2	y 1 (9)	<u>4</u> (10)	Into 3 (11)	erest 2 (12)	<u>1</u> (13)
	Highes Third	t 25	71	4	0	0	29	67	4	21	58	4	17
Boys	Middle Third	12	83	5	0	0	6	66	28	9	83	8	0
	Lowest Third	0	13	70	17	0	57	43	0	0	57	43	0
	Sub-total	10	49	18	4	0	22	49	11	8	56	13	3
	Highest Third	9	88	3	0	0	6	94	0	13	82	5	0
Girls	Middle Third	16	84	0	0	0	9	69	22	9	72	19	0
	Lowest Third	0	11	67	22	0	78	22	0	13	67	33	0
	Sub-total	8	57	13	-4	0	19	56	7	7	61	14	0
To	tal -	18	107	31	8	0	41	105	18	15	117	27	3

Upper and middle third groups found greatest usefulness in this item.

Majorities of both sexes voted useful, easy, and interesting.

third groups found least use for topic. No one had previous knowledge

of the material.

Table 25. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the Topic: "Experiments With a Tire
Pump to Determine Compressibility of Air."

	10	tings	sA j	rerer	Die	ring	9 G17	ntages	ercer	P		
1 (13)	rest 2 (12)	£°	(01) 1	1	cult; 2 (8)	3	4	I	S	A September 1997	4	Ser and Intelligence Group (1)
7.1	11	58	IS	and the said of the said		29	and a distance of the territory	0		72	-	Highest
0	8	83	6	28	99	9	0	0	5	83	12	Boys Middle Third
0	£4	57	0	0	43	57	0	77	70	13	0	Lowest
3	13	56	8	II	64	22	0	42	18	64	01	Sub-total
0	. 5	28	13	0	46	6	0	0	3	88	6	Highest
0	61	72	6	22	69	6	0	0	0	#8	16	Girls Middle Third
0	33	67	0	0	99	78	0	22	67	II	0	Lovest Dilil
0	ħI.	19		7	56	19	0.	4	13	57	8	Sub-total
3	75	7117	15	18	105	工作	0	8	31	107	18	- LetoT

Upper and middle third groups found greatest usefulness in this item. Majorities of both sexes voted useful, easy, and interesting.

Table 26. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "Experiments with a Siphon
and Discovering Scientific Principles of its Operation."

			P	erce	ntage	s Gi	ving	Dif	ferei	nt Rat	tings	of	
	ex and ligence Grou	p 4	T:	sefu	lness	D 4	iffi 3	cult;	7 1	4	Inte	erest	1
ANTON	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9((10)	(11)	(12)	(13)
	Highest Third												
Boys		4	96	0	0	0	79	21	0	4	63	33	0
	Middle Third	0	14	83	3	49	46	5	0	29	71	0	0
	Lowest Third	0	0	39	61	30	66	4	0	0	4	65	31
	Sub-total	1	28	38	15	24	50	8	0	11	41	23	7
	Highest Third	3	66	28	3	41	53	6	0	53	47	0	0
Girls	Middle Third	0	47	53	0	38	53	9	0	13	74	13	0
	Lowest Third	0	11	28	61	17	78	5	0	0	28	72	0
	Sub-total	1	38	30	12	28	48	4	0	21	44	17	0
To	tal -	2	66	68	27	52	98	12	0	32	85	40	0

All of the upper third boys considered this item useful. Heavy majorities of both sexes found it difficult or very difficult. Lowest third groups found least use for topic. No one had previous knowledge of the material.

Table 26. Obtaions of Eighth-grade Boys and Girls of Difficulty,

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "Experiments with a Siphon
and Discovering Scientific Principles of its Operation."

Percentages Giving Ddifferent Ratings of

É	dagge	Inte	į.		dlus S	1971	D:	asani	ioles O	IU S	14	iek and Ligance Groun	
The second second	(52)		Million III	200,400,000	A	A M M.	1991 18 10	(3)	W. C. W. ST. A.	44 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		(2)	
												Highopt Chird	
0		63			22	67	0,1	1 79	0	96	4		Boys
0	0	71	63	y art	SA	54	sective and the second		68) ske	0	elbbim bubir	
<u>.EE</u>	22	4	0	0	N.	35	100	62	32	0/	0	Lovest Third	
	23	TH	11	0		98	ds	ar	86	89	1	Indot-duG	
	0	74	53	100					20	95		Highest Puled	
0	13	47	13	Q		Éã	V DE	ŏ	90	24	0		e£q kĐ
0	87	89	0	0	3	87		19	89		0	Lovest Third	
0	. 75	44	IS	0	4	8.1	Na.	37	05	8.	I.	Sub-total	
	0.1	20	32		IL	80		TS	35	.66 L	9	- Easte	

All of the upper thind boys considered this item useful. Heavy majorities of both sexes found it difficult or very difficult. Lowest whird groups found least use for topic. No one had previous knewledge of the material.

Table 27. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Mechanics of
Breathing through use of a Manniken and Illustrated
Charts."

	NE SEE		P	erce	ntage	s Gi	ving	Dif	ferer	nt Ra	tings	of	
	ex and ligence Grou	1p (<u>4</u>	Usef	ulne: 2 (4)	ss 1 (5)	D 4 (6)	iffi 3 (7)	cult; 2 (8)	<u>1</u> (9)	(1 <u>0</u>)	Into 3 (11)	erest 2 (12)	<u>1</u> (13)
Daws	Highest Third	46	54	0	0	0	29	67	4	17	58	25	0
Boys	Middle Third	63	37	0	0	0	74	26	0	12	86	2	0
	Lowest Third	4	47	49	0	17	78	5	0	0	74	26	0
	Sub-total	34	40	7	0	4	51	26	1	8	62	10	0
Girls	Highest Third	47	50	3	0	0	9	91	0	3	82	12	3
ATTTO	Middle Third	50	50	0	0	0	41	53	6	6	75	16	3
	Lowest Third	0	17	72	11	22	67	11	0	6	78	16	0
	Sub-total	31	33	14	2	4	28	48	1	4	64	11	2
T	otal -	65	73	21	2	8	79	74	2	12	126	21	2

Greatest agreement was found in interest with-three fourths favoring the third rating: interesting. Upper groups voted useful or very useful almost entirely. Half the grade favored the second and third ratings. Table 27. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Mechanics of
Breathing through use of a Manniken and Illustrated
Charts."

	30	tings	it Ra	rerer	Dif	autv	s Gi	ntage	erce	Pe		
$\frac{1}{(13)}$	teest S	Inte	(JOT) 1	(<u>1</u>)	cult;	1661	(<u>6</u>)	as (5)	2 (4)	Usefr	4 (2)	Sex and Intelligence Group
0	25	58	Lat	4	67	29	0	0	0	54	94	Highest Third
0	S	98	SI	0	26	47	0	0	0	37	63	Boys Middle Third
0	26	417	0	0	2	87'	7.1	0	64	7.h	41	Lowest Third
0	OI	62	8	I	26	51	#	0	7	40	34	Sub-total
3	IZ	82	ε	0	91	6	. 0	0	3	50	44	Highest Third Girls
8	16	57	9	9	53	工中	0	0	0	50	50	Middle Phird
0	7.6	78	9	0		67	22	.7.7.	27	17	0	Lowest Third
S	II	49	4	1	84	88	ħ	S	#I	33	31	Sub-totel
S	IS	126	12	S	74	79	8	2	IS	73	65	- IstoT

Greatest agreement was found in interest with-three fourths fevoring the third rating: interesting. Upper groups voted useful or very useful almost entirely. Half the grade favored the second and third ratings.

Table 28. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Common Diseases
of the Breathing System."

			P	erce	ntage	s Gi	ving	Dif	fere	nt Ra	tings	of	
	x and igence Grou	1p (2)	Use 3 (3)	fulne 2 (4)	ess 1 (5)	(6)	_3	cult 2 (8)	1	<u>4</u> (10)	3	2 (12)	<u>1</u> (13)
Воже	Highest Third	33	67	0	0	0	42	50	8	25	54	21	17
Boys	Middle Third	66	34	0	0	69	29	2	0	17	77	6	0
	Lowest Third	22	44	34	0	78	22	0	0	0	22	78	0
S	ub-tôtal	36	37	8	0	42	24	13	1	12	45	24	0
Girls	Highest Third	13	82	5	0	41	59	0	0	16	72	18	0
V 4.2 4.5	Middle Third	63	37	0	0	69	22	96	0	16	72	18	0
	Lowest Third	0	33	67	0	72	28	0	0	0	22	67	11
S	ub-total	24	44	15	0	48	31	0	0	5	46	28	2
То	tal -	60	81	23	0	90	55	13	1	17	91	52	2

Greatest usefulness for this topic was found by middle and upper third groups but greatest difficulty was experienced by middle and lower groups. Numbers of boys and girls choosing each rating were in close agreement. Table 28. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Common Diseases
of the Breathing System."

	To	agai	taH tat	ierei	Diff	ring	s Gir	ntage	ercei	Pe			
1 (13)	(12)	3	(01)	I	sulty g (8)	3	4	1	(4)	3	1	Sex and Intelligence Grou (1)	
									-	- Amelion	-		
0	21	45	25	8	50	24	0	0	0	67	33	Highest Third Soys	3
0	9	77	7.7	0	S	29	69	0	0	34	99	Middle Third	
0	78	22	0	0	0	SS	87	0	34	朴朴	22	Lowest Third	
0	24	45	IS	I	13	149	24	0	8	37	36	Sub-total	
0	18	72	31	0	0	59	工物	0	5	98	13	Highest Third	
0	18	27	16	0	0	22	69	0	0	37	63	Middle Third	*
11	67	SS	0	0	0	88	72	0	67	33_	0	Lowest Third	
S	88	46	5	0	0	31	48	0	15	44	45	Sub-total	
S	52	16	17	1	13	55	90	0	23	18	60	- LetoT	

Greatest usefulness for this topic was found by middle and upper third groups but greatest difficulty was experienced by middle and lower groups. Numbers of boys and girls choosing each rating were in close agreement.

Table 29. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the History of
Fire."

			P	ercei	ntage	s Gi	ving	Diff	ferei	nt Rat	tings	of	
	ex and ligence Grou (1)	1p (<u>2</u>)	Use 3 (3)	fulne 2 (4)	25 1 (5)	(6)	(7)	cult; 2 (8)	1 (9)	<u>4</u> (10)	Inte 3 (11)	erest 2 (12)	1 (13)
Boys	Highest Third	88	4	8	0	4	21	71	4	25	33	25	17
Doys	Middle Third	26	62	12	0	0	14	86	0	6	85	9	0
	Lowest	0	9	65	26	9	78	13	0	0	39	44	17
*	Sub-total	30	25	11	6	3	28	50	1	8	47	19	7
Girls	Highest Third	72	19	9	0	0	9	82	9	72	28	0	0
427.70	Middle Third	9	56	28	7	0	44	56	0	6	53	32	9
	Lowest Third	0	11	83	6	22	78	0	0	0	67	28	5
	Sub-total	26	26	15	3	4	31	43	3	25	37	16	4
ŗ	Potel -	56	51	26	9	7	59	93	4	33	80	35	11

Upper groups found greatest use and least difficulty. Lowest ability groups found greatest difficulty. Reactions of boys and girls were in close agreement. It is worth noting that this subject was very interesting to almost three-fourths of the girls in the highest ability group.

Table 29. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the History of
Fire."

20	Ratings	Different	Giving	Percentages
----	---------	-----------	--------	-------------

	x and igence Group	il d	Use 3	fulne	888	D	iffi	culty	I	4	Inte	ว่ะอน	r
)		(2)	(8)	September - Septem	(5)	(9)	(7)	(8)	(6)	(10)	(11)	(31)	(13)
Boys	Highest Third	88	4	8	0	4	ES	17	ħ	25	33	25	7.7
9600	Middle Third	26	62	12	0	0	14	86	0	9	58	6	0 .
	Lowest	0	9	65	26	5	87	13	0	0	.39.	44	TI
a ·	Sub-total	30	25	II	9	3	88	50	I	8	74	19	7
Girls	Highest Third	27	19	6	0	0	6	82	9	27	28	0	0
· in the	Middle Third	6	56	28	7	0	iri	56	0	9	53	32	6
	Lovest	0	11	83	9	22	78	0	0	0	67	89	5
a	Sub-total	35	26	15	3	#	31	43	3.	25	37	J.	#
oT	otel -	56	51	26	6	7	59	93	4	33	08	35	2.1

Upper groups found greatest use and least difficulty. Lowest shillty groups found greatest difficulty. Reactions of boys and girls were in close agreement. It is worth noting that this subject was very interesting to almost three-fourths of the girls in the highest shillty group.

Table 30. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty, and

Interest of the topic: "Study and Discussion of Methods

of Fire Making."

			P	erce	ntage	s Gi	ving	Dif	fere	nt Ra	tings	of	
	ex and ligence Gro	up 4	Use:	fulno 2	ess 1	D. 4	iffi 3	cult;	y 1	4	Into	erest	1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Boys	Highest Third	38	62	0	0	0	29	71	0	25	58	8	4
Doys	Middle Third	60	31	9	0	0	6	66	28	14	83	3	0
	Lowest Third	0	26	74	Ò	0	52	48	0	0	30	70	0
	Sub-total	30	32	19	0	0	21	51	10	11	50	19	1
Girls	Highest Third	63	34	3	0	9	- 6	75	19	72	28	0	0
GILIS	Middle Third	3	66	31	0	0	19	81	0	6	53	41	0
	Lowest Third	0	22	78	0	11	39	50	0	0	6	72	22
	Sub-total	21	36	25	0	2	15	59	5	25	27	25	4
	Potal -	51	68	44	0	2	36	110	15	36	77	44	5

This topic was most interesting to highest third girls. Upper and middle groups found the most usefulness. A Majority found the work easy. All voted some usefulness in the material.

Table 30. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty, and
Interest of the topic: "Study and Discussion of Methods
of Fire Making."

	20	inge	it Rat	ferer	Dif	ring	G1.	ntage	erce	P		
E	teers	Inte	47	y I	cult;	1771	D:	aas	fuln 2	Use:	ħ d	Sex and Intelligence Grou
(13)	(31)	(11)	(10)	(8)	(8)	(7)	(6)	(5)	(4)	(3)	(2)	(1)
4	8		25	0	TL	29	0	0	0	62	38	Highest Third
0		83	九口	88	99	9	0	0	6	31	60	Soys Middle Third
0	70	30	0	.0	84	52	0	6	477	26	0	Lowest
1	19	50	11	0.0	51	21		0	19	32	30	Sub-total
0	0	88	27	61	75	9	0	0	3	34	63	Highest Third
0	Th		9	0:	18	19	0	0	31	99	3	Middle Third
98	97	9	0	0	50	39	T.T.	0	78	22	0	Lowest
4	25	27	25	5	59	15	S	,0	25	36	IS	Sub-total
5	4147	77	36	15	OIL	36	S	0	44	68	51	Total -

This topic was most interesting to highest third girls. Upper and middle groups found the most usefulness. A Majority found the work easy. All voted some usefulness in the material.

Table 31. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Study and Discussion of
Chemical Changes in Combustion."

			P	erce	ntage	es Gi	ving	Dif	ferei	nt Rat	tings	of	
	ex and ligence Grou	1p (<u>2</u>)	Use 3 (3)	fuln 2 (4)	ess 1 (5)	D: 4 (6)	(7)	(8)	<u>1</u> (9)	4 (10)	Int- 3 (11)	erest 2 (12)	<u>1</u> (13)
Powe	Highest Third	38	58	4	0	4	17	79	0	4	46	42	8
Boys	Middle Third	0	14	69	17	3	77	20	0	0	23	66	11
	Lowest Third	0	26	74	0	17	83	0	0	0	13	78	9
	Sub-total	9	25	42	6	6	50	25	0	1	22	51	7
Girls	Highest Third	0	19	60	21	9	75	16	0	3	41	41	15
GILIS	Middle Third	0	13	72	15	22	78	0	0	0	22	78	0
	Lowest Third	0	0	50	50	28	72	0	0	0	11	83.	6
	Sub-total	0	10	51	19	15	62	4	0	1	22	54	5
	rotal -	9	35	96	25	21 :	112	29	0	2	44	105	12

Greatest usefulness was found by highest third boys. Majorities of all groups chose second or third ratings.

Table 31. Opinions of Highth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Study and Discussion of
Chemical Changes in Combustion."

Percentages Giving Different Ratings of

	ex and Agence Group	4	Use:	fulne 2		D.	1111	eult;		47	Inte	erest 2	I
	(1)	No. of Contracts	(3)		(5)	****	-3 Facility (-1)	(8)		(10)	(11)		(13)
Boys	Highest Third	38	58	11	0	ή	TT	79	0	4	46	242	8
2600	Middle Third	0	14	69	7.1	3	24	20	0	0	23	99	11
	Lowest Third	0	26	47	0	7.7	83	0	0	0	13	78	8
	Sub-total	6	25	24	9	9		25		I	22	FI	7
Girls	Highest Third	0	19	60	IS	6	75	91		3	Τή	工村	1.5
92320	Middle	0	13	72	15	22	78	0	0	0	22	87	0
	Lovest Third	0	0	50	50	28	27	0	0	0	II.	83	9
	Sub-total	0	10	51	.61	15	62	4	0		22	54	5
T	- Lato	6	35	96	25	IS	STI	68	0	2	47.17	105	12

Greatest usefulness was found by highest third boys. Majorities of all groups chose second or third ratings.

Table 32. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Experiments with Methods of
Extinguishing Fire."

			P	ercei	ntage	s Gi	ving	Difi	ferer	nt Ra	tings	of	
	ex and ligence Grou	p 4 (2)	Use: 3	fulne 2 (4)	ess 1 (5)	D 4 (6)	iffi 3 (7)	cult; 2 (8)	1 (9)	<u>4</u> (10)	Inte 3 (11)	2 (12)	1 (13)
Powe	Highest Third	71	29	0	0	0	50	50	0	0	21	79	0
Boys	Middle Third	66	34	0	0	0	20	71	9	12	86	0	0
	Lowest Third	48	52	0	0	0	57	43	0	9	78	13	0
	Sub-total	51	30	0	0	0	32	47	3	6	53	31	0
Girls	Highest Third	78	19	3	0	0	69	31	0	16	61	19	4
	Middle Third	72	28	0	0	0	16	84	0	16	84	0	0
	Lowest Third	0	56	39	5	22	72	6	0	22	72	6	0
	Sub-total	48	24	8	1	4	40	35	0	14	62	4	1
	Total -	99	54	8	1	4	72	82	. 3	20	115	35	1

This topic had positive usefulness for all groups. Opinion was almost equally divided on second and third difficulty ratings. Almost three-fourths of the grade found the item interesting. Strangely enough a large majority of highest third boys found the work of little interest.

Table 32. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Experiments with Methods of
Extinguishing Fire."

	20	tings	af Ja	erer	Diff	ving	e Giv	ntager	erce	Pe		
(13)	(12)	Inte	(0I) #	I	eu1ty 2 (8)	8	(6) T		S	Used 3 (3)	77	Sex and Intelligence Grou
0	79	ES	0	0	50	50	0	0	0	29	71	Highest
0	0	98	12	6	71	02	0	0	0	148	99	Boys Middle Third
0	13	87	6	0	43	57	0	0	0	52	48	Lowest
0	31	53	9	3	47	32	0	0	0	30	51	Sub-total
- 47	19	61	16	0	31	69	0	0	3	19	78	Highest Third Girls
0	0	48	91	0	48	91	0	0	0	28	27	Middle Third
0	9	. 27	22	0	9	72	22	5	39	56	0	Lowest Third
	#	62	14	0	35	40	4		8	1/3	48	Sub-total
1	35	SIL	20	8.	82	72	47	I	8	54	66	Total -

This topic had positive usefulness for all groups. Opinion was almost equally divided on second and third difficulty ratings. Almost three-fourths of the grade found the item interesting. Strangely enough a large majority of highest third boys found the work of little interest.

Table 33. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Proper
Treatment of Burns."

			P	ercei	ntage	s Gi	ving	Dif	ferei	nt Rat	tings	of	
	ex and ligence Grou	1p 4	Use:	fulne	ess 1	D 4	iffi 3	cult;	y 1	4	Inte	erest	1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Boys	Highest Third	79	21	0	0	13	54	17	16	8	46	38	8
Doys	Middle Third	71	29	0	0	0	88	6	0	20	63	17	0
	Lowest Third	4	70	26	0	22	78	0	0	4	65	31	0
	Sub-total	45	30	5	0	8	58	12	3	27	36	15	2
Girls	Highest Third	88	12	0	0	9	60	31	0	69	31	0	0
GILIS	Middle Third	53	47	0	0	6	88	6	0	22	69	9	0
	Lowest Third	0	11	83	6	17	72	11	0	0	72	28	0
	Sub-total	45	21	5	1	8	60	15	0	29	45	8	0
	Total -	90	51	10	0	16	118	27	3	56	81	23	2

Majorities of all except lowest ability groups found this topic very useful; only ten judged the work of little use. Almost three-fourths of the class found the work difficult with a slightly larger number finding the work very interesting or interesting.

Table 33. Opinions of Righth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Proper
Treatment of Eurns."

Percentages Giving Different Ratings of

	sx and Ligence Grou	t d	use.	rulus S	aas	T.	irri	d Luc S	Į.	4	Inte	rest 2	-
	(I)	-		-		(6)				-	(11)		(00)
	Highest Third	7.9	21		0.	1.3	42	7.1	91		91	38	
Boyrs	Middle Dinie	73	68	0	0	0	88			20	63	7.7	0
	Lowest	#	70	96	0	33	73	0	0	1	65	18.	0
	Sub-total	54	30	ą	0	. 3	38	31	٤	79	36	at	3
alrib	Mighest Whire	88	SE	0		6		33		69	31		0
3.110	Middle Diffe	53	1.4	1012	0	0	68		0	22	69	6	
	Jaewod Uhire	0_	II	88	94		27.	II	0	0	27	88	0
	Sub-total	45	LS.	đ	1	8.	00	LOA	Ċ,	68	45	8	9
ŗ	otal -	90	19	10	0	16	311	7'9	3	36	51	23	S

Majorities of all except lowest ability groups found this topic very useful; only ten judged the work of little use. Almost three-fourths of the class found the work difficult with a slightly lerger number finding the work very interesting or interesting.

Table 34. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "Study of Local and State

Fire Laws Pertaining to School, Home and Public Buildings."

			P	erce	ntage	s Gi	ving	Dif	fere	nt Ra	tings	of	
	ex and ligence Grou	p (2)	Use 3 (3)	fulno 2 (4)	ess 1 (5)	D: 4 (6)	(7)	cult 2 (8)	1	4 (10)	3	2 (12)	<u>1</u> (13)
		(-)	137	1.7	121	(0)	(1)	101	121	1,1207	1227	(22)	(20)
Воуз	Highest Third	54	42	4	0	0	42	54	4	21	58	18	3
	Middle Third	3	74	20	3	0	9	80	11	6	86	8	0
	Lowest Third	0	0	35	65	0	57	43	0	17	70	13	0
	Sub-total	14	36	16	16	0	26	51	5	11	60	8	1
Girls	.Highest Third	25	66	5	4	3	75	19	3	6	82	12	0
GILTS	Middle Third	0	28	69	3	0	6	78	16	13	82	5	0
	Lowest Third	0	0	39	61	11	72	17	0	0	78	22	0
	Sub-total	8	30	30	13	3	39	34	7	6	66	9	0
	Potal	22	66	46	29	3	65	85	12	17	126	17	1

Highest and middle third boys and highest third girls found this material useful or very useful. Majorities of both lower third groups found the work useless. All were in close agreement on difficulty and interest.

Pable 34. Opinions of Highth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Study of Local and State
Fire Laws Pertaining to School, Home and Public Buildings."

	20	tings	ot Re	fere	Dif	ving	s Gir	ntage	eore	P			
(13)	2 (12)	3	(0E)	L	all control of the	E	#	I	5	3	1	Sex and alligence Grou	Inte
٤	3.6	58	22	ħ	54	24	0	0	4	42	54	Highest Third	
0	8	98	9	I.I.	08	6	0	3	20	th	3	Third Whird	Boys
0	13	07	7.5	0	24	57	0	65	35	0	0	Lowest	
I	8	60	TI	9	51	26		16	16	36	14	Sub-total	
0	SI	\$8	9	3	19	75	3	4	5	66	25	jaengiH.	Girl
0	ā	98	13	16	87	9	0	8	69	88	0	Middle Third	PATE.
0	22	87	0	0	77	27	LI	61	39	0	0	Lowest Third	
0	9	99	9	7	34	39	3	13	30	30	8	Sub-total	
I	17	126	7.7	12	85	68	3	29	94	66	22	Total	

Highest and middle third boys and highest third girls found this material useful or very useful. Majorities of both lower third groups found the work useless. All were in close agreement on difficulty and interest.

Table 35. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Reasons for
School Fire Drills."

			Pe	ercei	ntage	s Gi	ving	Dif	fere	nt Rat	tings	of	
	Sex and			TOPS		8 Gay	ring	Din			inga	of.	
Inte	lligence Gro	up 4	Use:	fulne 2	1	4	iffi 3	cult;	7	4	Inte	erest	1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Highest												
Boys	Third	71	21	8	0	0	33	58	9	17	50	17	8
	Middle Third	83	17	0	0	0	0	25	75	71	23	6	0
	Lowest Third	9	70	21	0	13	61	26	0	9	83	8	0
	Sub-total	48	27	6	0	3	22	28	29	31	39	9	3
	Highest Third	88	12	0	0	0	6	66	28	31	66	3	0
	Middle Third	66	34	0	0	0	0	28	72	44	56	0	0
	Lowest Third	17	78	5	0	17	83	0	0	11	78	11	-0
	Sub-total	52	29	1	0	3	17	30	32	26	53	3	0
	Total	100	56	7	0	6	39	58	61	57	92	12	3

Lowest third groups found this item useful although the other ability groups voted it very useful. Although middle third groups felt that they knew the subject already, they found it very interesting, nevertheless.

Pable 35. Opinions of Bighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Reasons for
School Fire Drills."

	To	agnit	taA tr	rerel	DAC	ring	s Giv	ntage	ieore	Pe		
1	rest 2	Inte	ή		oult;	1111	T.	aas	alu:	Usei 3	र्ग वा	Sex and Intelligence Grov
(13)	(31)	(II)	(0.1)	(8)	(8)	(7)	(9)	(5)	(4)	(8)	(9)	(1)
8	17	50	17	0	58	33	0	0	8	IS	27	Highest Third Boys
0	9	23	77	75	25	0	0	0	0	17	83	Middle
. 0	8	83	0	0	26	61	13	0	IS	70	ę	Lowest
3	9	39	31	29	28	22	3	0	9	75	48	Sub-total
0	3	99	31	88	99	9	0	0	0	12	88	Highest Third
0	0	56	44	27	28	0	0	0	0	34	99	Middle
0	I.I.	87	C.C.	0	0	83	TI	0	2	78	TI	Lowest
0	3	53	26	32	30	TI	£	0	I	99	52	Sub-total
3	21	92	57	61	58	39	9	0	7	56	100	Total

Lowest third groups found this item useful although the other ability groups voted it very useful. Although middle third groups felt that they knew the subject already, they found it very interesting, nevertheless.

Table 36. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "A Study of Procedure in

Ringing a Fire Alarm and Classroom Examination of a Fire

Alarm Box."

30502	ME AND MERCEN Arms		Pe	ercei	ntage	s Gi	ving	Dif	ferei	nt Rat	ings	of	
	ex and ligence Group	U:	sefu.	lness 2	1	D: 4	iffi 3	cult;	y 1	4	Inte	erest 2	1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Boys	Highest Third	54	46	0	0	0	38	50	12	8	25	46	21
Doys	Middle Third	53	47	0	0	0	3	57	40	40	57	3	0
	Lowest Third	17	79	4	0	9	44	26	21	并	35	21	0
	Sub-total	36	43	1	0	2	20	38	22	26	34	17	3
Girls	Highest Third	88	12	0	0	0	0	22	78	47	41	12	0
411 10	Middle Third	16	84	0	0	0	0	31	69	3	66	31	0
	Lowest Third	0	67	33	0	28	72	0	0	67	33	0	0
	Sub-total	33	42	8	0	5	13	17	46	28	40	11	0
	Total -	69	85	9	0	7	33	55	68	54	74	28	3

Only a small minority saw little use in this material. Lowest third girls found the most difficulty and the greatest interest of all groups. The only dislike for this item was found among the upper third boys.

Table 36. Opinions of Highth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Procedure in
Ringing a Fire Alarm and Classroom Examination of a Fire
Alarm Box."

	20	agni	tsA t	feren	Diff	ring	rið a	ntage	ercer	Pe		
Ţ	daege S	Inte	4	I	enlt,	lffi.	Di U	E E	lness 2	seful	U:	Sex and Intelligence Group
(13)		(11)	(01)		(8)	(7)	(6)	-	-	(3)		(1)
LS	46	25	8	12	50	38	0	0	0	94	54	Highest Third
0	3	57	04	04	57	3	0	0	0	747	53	Boys Middle Third
0	.23.	35	44	IS	98	üħ	6	0	4	67.	17	Lowest
8	7.1	34	26	22	38	09	S	0	I	143	36	Sub-total
0	2.2	14	. 4t	78	22	0	0	0	0	12	88	Highest Third Girls
. 0	31.	66	3	69	31	0	0	0	0	48	16	Middle Third
0	0	33	67	0	0	57	88	0	33	779	0	Lowest
0	11.	04	89	46	17	13	5	0	8	42	33	Sub-total
E	88	417	54	68	55	33	7	0	.0	85	69	- fstoT

Only a small minority saw little use in this material. Lowest third girls found the most difficulty and the greatest interest of all groups. The only dislike for this item was found among the upper third boys.

Table 37. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "Examination and Discussion

of Sodacid Tetrachloride and Carbon Dioxide Extinguishers."

			P	erce	ntage	es Gi	ving	Dif	ferer	nt Rat	tings	of	
	ex and ligence Group	4 (2)	Use: 3 (3)	fuln 2 (4)	ess 1 (5)	(6)	1ffi 3 (7)	cult 2 (8)	1	(10)	Into 3 (11)	erest 2 (12)	<u>1</u> (13)
Boys	Highest Third	50	50	0	0	0	25	71	4	17	49	17	17
20,3	Middle Third	17	83	0	0	0	26	71	3	9	71	20	0
	Lowest Third	0	26	52	22	0	26	74	0	9	65	26	0
	Sub-total	18	47	12	5	0	21	60	2	9	49	17	4
Girls	Highest Third	22	16	12	0	0	19	38	43	9	44	47	0
0.22	Middle Third	19	81	0	0	ō	44	56	0	22	75	3	0
	Lowest Third	0	9	78	13	28	61	11	0	44	50	6	0
	Sub-total	13	48	18	2	5	31	32	10	18	47	20	0
	Total -	31	95	30	7	5	52	92	12	27	96	37	4

Boys found the work much easier than did the girls. In all other ratings sexes were in almost complete agreement. Only a fraction of the lower third girls voted this item very difficult. The only dislike was found in the upper third group of boys.

Table 37. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Examination and Discussion
of Sodacid Tetrachloride and Carbon Dioxide Extinguishers."

	20	ings	taa t	ferer	Dif	ving	s Gi	ntage	erce	q		
<u>1</u> (13)	2 (12)	3	(OT) 4	I	cult 2 (8)	3	4	I	fuln 2 (4)	É	(5)	Sex and Intelligence Group
7.7	17	64	2.7	4	77	25	0	0	0	50	50	Highest Third
0	09	72	9	3	17	26	0	0	0	83	7.7	Boys Middle Third
0	98	65	9	0	47	26	0	22	52	26	0	Lowest Third
4	7.7	64	6	2	60	21	0	5	12	7.4	18	Sub-total
0	2.4	47.47	9	٤4	38	19	0	0	12	31	22	Highest Third Giris
0	3	75	22	0	56	trtr	0	0	0	18	19	Middle Third
0	9	50	44	0	_ ££,	67	28	13	87	9	0	Lovest Third
0	08	44	18	OI	32	31	2	S	18	48	13	Sub-total
#7	37	96	75	SI	92	52	5	7	30	95	31	Total -

Boys found the work much easier than did the girls. In all other ratings sexes were in almost complete agreement. Only a fraction of the lower third girls voted this item very difficult. The only dislike was found in the upper third group of boys.

Table 38. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "A Study of Theories Relating to

Early History of the Earth."

			Pe	erce	ntage	s Gi	ving	Dif:	fere	nt Rat	ings	of	
	ex and ligence Group	U 4	sefu:	lnes:	3	D: 4	iffi	cult;	7 1	4	Into	erest	1
-	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Boys	Highest Third	38	58	4	0	0	8	92	0	4	22	66	8
DOJS	Middle Third	0	0	25	75	82	18	0	0	0	9	77	14
	Lowest Third	0	26	48	26	78	22	0	0	0	13	78	9
	Sub-total		18	20	33	44	16	19	0	1	11	59	9
Girls	Highest Third	0	3	28	69	72	25	3	0	3	22	59	16
d II Ib	Middle Third	0	9	75	16	72	28	0	0	0	19	78	3
*	Lowest Third		0	22	78	50	50	0	0	0	0	78	22
	Sub-total	0	4	37	39	55	26	1	0	1	13	58	10
	Potal -	9	22	57	72	99	42	20	0	2	24	117	19

This work which delved into the theories of earth origin was very difficult for all groups except the upper third boys who voted it easy. Majorities of all groups found the work of little interest. Middle third boys and highest and lowest third girls considered the item of no use at all.

Table 38. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Theories Relating to
Early History of the Earth."

iti	20	aA ju	lerer	Dif	ring	s Gir	ntage	erce	P		
******	erest 2 1	4	I		3	4		lnes 2	3	4	Sex and Intelligence Group
)((12) (13)	(01)	(6)	(8)	(7)	(9)	(5)	(#)_	(3)	(3)	(T)
	66 8	17	0	92	8.	0	0	4	58	38	Highest Third Boys
	41 77	0	0	0	18	28	75	25	0	0	Middle Third
in access	87	0	0	0		78	26	48	26	0	Lowest
	59 9	I	0	51	16	44	.33	05	18	6	Sub-total
	59 16	3	0	3	25	72	69	88	3	0	Highest Third Girls
•	78 3	0	0	0	28	72	16	75	6	0	Middle
	78 22	0	0	0	50	50	.78	_ 55_	0	0	· Lowest Third
	58 10	I	0	I	98	55	39	37	4	0	Istot-dua
	61 211	2		05	42	66	27	57	22	6	- LetoT

This work which delyed into the theories of earth origin was very difficult for all groups except the upper third boys who voted it easy. Majorities of all groups found the work of little interest. Middle third boys and highest and lowest third girls considered the item of no use at all.

Table 39. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Science's
Explanations of Rock Origin and Change."

			P	erce	ntage	s Gi	ving	Dif:	ferei	nt Rat	ings	of	
	ex and ligence Group	(<u>2</u>)	sefu: 3 (3)	lnes 2 (4)	s 1 (5)	(6)	(7)	(8)	<u>1</u> (9)	<u>4</u> (10)	Into 3 (11)	erest 2 (12)	1 (13)
Воуз	Highest Third	29	58	13	0	0	42	58	0	4	46	50	0
DOys	Middle Third	0	0	29	71	71	29	0	0	0	12	71	17
	Lowest	0	13	61	26	9	44	47	0	0	13	74	13
	Third Sub-total		17	27	32	27	30	25	0	1	18	53	9
Girls	Highest Third	0	0	78	22	0	34	66	0	3	19	78	3
42220	Middle Third	0	9	53	38	41	47	12	0	0	16	78	6
	Lowest Third	0	0	28	72	33	67	0	0	0	6	50	44
	Sub-total	0	3	47	32	19	38	24	0	1	12	58	11
	Total -	7	20	74	64	46	68	49	0	2	30	111	20

Reactions on this item were considerably spread with opinions divided closely between little use and no use at all. Greatest agreement was found in interest with a liberal majority deciding the work to be of little interest.

08

30 111

Table 39. Opinions of Eighth-grede Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Science's
Explanations of Rock Origin and Change."

e e the fired	to	agnit	tsE to	1919	Diff	gair	a Gi	ntage	eore	9		
I (CE)	erest 2	£	4	I	cult;	3	4	I	- 5	sefu 3	41	Sex and Intelligence Group
7257	(ST)	1441	1041	15%	101		181	(5)	142	151	72)	(I)
0	50	91	47	0	58	42	0	0	13	58	ęs	Highest Third
7.7	77	22	0	0	0	29	71	17	29	0	0	Boys Middle Third
13	47	13	0	0	24	44	Q	26	19	13	0	Lowest
6	53	18	I	0	25	30	75	32	79	17	7	Sub-total
S.	78	19	3	0	66	34	0	SS	87	0	0	Highest Third Girls
9	78	91	0	0	12	24	TH	38	53	6	0	elbbiM bridT
44	50	9	0	0	0	67	33	27	28	0	0	Jeewol Third
11	58	12	Ţ	0	49	38	51	32	74	3	0	Sub-total

Reactions on this item were considerably apread with opinions divided closely between little use and no use at all. Greatest agreement was found in interest with a liberal majority deciding the work to be of little interest.

Total -

46 68 49

Table 40. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Three Rock
Families."

			P	erce	ntage	s Gi	ving	Dif	ferer	nt Rat	ings	of	
	ex and ligence Group	4 (2)	sefu 3 (3)	lnes 2 (4)	s 1 (5)	(6)	1ff1 3 (7)	(8)	<u>1</u> (9)	<u>4</u> (10)	Int 3 (11)	erest 2 (12)	<u>1</u> (13)
Boys	Highest Third	29	54	17	0	13	79	8	0	29	58	13	0
DOys	Middle Third	0	6	74	20	43	57	0	0	0	12	71	17
	Lowest Third	0	13	70	17	52	44	4	0	0	4	78	18
	Sub-total	7	18	45	11	30	48	33	0	7	19	45	10
Girls	Highest Third	3	25	60	12	60	40	50	0	0	31	63	6
411 10	Middle Third	0	25	75	50	22	78	0	0	0	86	82	12
	Lowest Third	0	0	50	50	11	72	17	0	0	28	66	6
	Sub-total	1	16	52	13	28	51	3	0	0	17	58	7
	Total -	8	34	97	24	58	99	56	0	37	36	103	17

Only the highest third boys saw any real use or interest in this item although they seem to have found the work as difficult as did all other groups. Girls and boys closely agreed in their choices of ratings. General consensus: little use, difficult, little interest.

Table 40. Opinions of Bighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Three Rock
Families."

	20	agnit	it Ret	rerer	Diff	Surv	e Gir	ntage	ercet	q		
<u>T</u> (<u>13</u>)	erest 2 (12)	3	(OI) #	I	S	(7)	7	I	Ineas 2 (4)	3	7	Sex and Intelligence Group
0	13	58	29	0	8	27	13	0	77	15	29	Highest Third
77	27	12	0	0	0	57	43	09	74	9	0	Boys Middle Third
18	78	4	0	0	11	मंत्र	52	17	70	13	0	Lovest
OI	54	61	7	0	3	- 847	30	11	45	18	7	Sub-total
9	63	31	0	0	0	04	60	SI	60	25	3	Highest Third Girls
SI	28	9	.0	0	0	87	22	0	75	25	0	Middle Third
9	99	88	0	0	1.7	72	11	50	50	0	0	Lowest
7	58	YI	0	0	3_	51	88	13	52	16	I	Sub-total
7.7	103	36	7	0	9	99	58	42	97	34	8	- LetoT

Only the highest third boys saw any real use or interest in this item although they seem to have found the work as difficult as did all other groups. Girls and boys closely agreed in their choices of ratings. General consensus: little use, difficult, little interest.

Table 41. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "A Discussion of the Possible

Explanations for New England's Rocky Surface."

			Pe	erce	ntage	es Gi	ving	Dif	ferei	nt Rai	ings	of	
	ex and ligence Group	4 (2)	sefu: 3	lnes: 2	1 (5)	D: 4 (6)	1ff1 3	(8)	1 (9)	(10)	Int. 3 (11)	erest 2 (12)	<u>1</u> (13)
		(5)	737	17/	121	10)		(0)	(9)	(10)	177	1751	1737
Boys	Highest Third	29	71	0	0	0	33	67	0	25	54	17	4
	Middle	The	34		-		h m	1.			0.0		
	Third	0	0	63	37	0	43	46	11	0	83	17	0
	Lowest	0	13	57	20	22	70	8	0	0	44	56	0
	Third	0	13	21	30	22	10	0	0	U	44	20	0
	Sub-total	7	20	35	19	5	39	33	4	6	52	21	1
	Highest				4				1			•	
Girls	Third	0	71	29	0	4	46	50	0	83	17	0	0
GILIS	Middle		70										
	Third	0	0	72	28	3	66	31	0	13	87	0	0
	Lowest								4,4				
	Third	0	33	67	0	22	78	0	0	0	22	72	6
	Sub-total	0	23	49	9	6	46	29	0	24	44	13	1
	Total -	7	43	84	28	11	85	62	4	30	96	34	2

Here again highest third boys find real usefulness in the item.

Of the girls, the highest third considered it useful. Least interest was voted by lowest third groups. Highest third girls found greater interest in the item than any of the other groups.

the work stready although how they could have known it previously is

Table "1. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Discussion of the Possible
Explanations for New England's Rocky Surface."

Percentages Giving Different Ratings of

Sex and Intelligence Group		Usefulness 4				Difficulty 1				Interset			
<u>(r)</u>			end make		AMORE SAL	administration of						(SI)	Service of the latest and the latest
Boys	Highest Third	58	īl,	0	10	0	33	73	0	25	145	7.7	14
	Middle	0	0	63	37	0	43	46	1.1.	0	83	7.5	ō
aluto	Lowest Tilmd	0	EI.	27	30	22	70	8	0	0	114	56	0
	Sub-total	77	02	35	19	8	39	33	41	9	52	IS	I
	Highest Third	0	71	29	0	4	94	50	0		1.7	0	0
	Middle	0	0.	37	89	8	66	18	0	13	87	0	
	Lowest Ehird	0	33	67.	0	35	37	0	0	0.	. 22	. 27.	3
	Sub-total	0	25	64	9.	3	46	. 88	0	49	44	13	_ <u></u>
"	lotel -	7.	43	48	88	TT	85	62	4	30	96	34	9

Here again highest third boys find real usefulness in the item. Of the girls, the highest third considered it useful. Lesst interest was voted by lovest third groups. Highest third girls found greater interest in the item than any of the other groups.

Table 42. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Discussion of the Effects
of Rock Formation upon New England Industry."

Optimious of Mighth-grade loss and

	er and ligense Group	10	P	erce	ntage	s Gi	ving	Dif	fere	nt Rat	tings	of	
	ex and ligence Group	U:	sefu.	lnes 2	s	D:	iffi 3	cult;	y	4	Inte	erest	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Boys	Highest Third	21	67	8	4	-8	67	25	0	17	58	25	0
Doys	Middle Third	0	6	56	38	0	6	74	20	0	37	63	0
	Lowest	0	4	65	31	0	0	35	65	0	30	70	0
Girls	Sub-total	5	19	35	23	2	18	38	22	4	34	43	0
	Highest Third	13	72	15	0	0	22	72	6	28	53	19	0
	Middle Third	0	25	69	6	0	0	60	40	0	25	75	0
	Lowest Third	0	11	72	17	0	0	22	78	0	17	66	17
	Sub-total		33	40	5	0	7	46	28	9	28	38	3
	Total -		52	75	28	2	25	84	50	13	62	81	3

The only usefulness and interest in this topic were found by highest third groups with the boys of that level experiencing difficulty with the work. Majorities of the lowest groups decided that they knew the work already although how they could have known it previously is a matter of conjecture.

Table 42. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Discussion of the Effects
of Rock Formation upon New Hogland Industry."

0		Jan		Percentages
EO	25.50 PE P.75 (8.54)	THE PERSON AND THE PARTY.	THE PARTY OF THE P	PERMINERS OF THE STATE OF THE S
200,000	- Mary State of the same or	Marine and the street with	Charles A ma page	OF THE PARK WARRIES AND THE PARK TO

I	rest	Inte	4		tLu:	1991	D:	s 1		sefu.	Tr.	Sex and Intelligence Group
-	(12)		OR THE REAL PROPERTY.			(7)	ACTUAL PROPERTY.	(5)		-	(3)	(1)
0	25	58	1.7	0	25	57	8	ħ	8	67	21	Highest Third
0	63	37	0	08	47	9	0	38	56	6	0	Boys Middle Third
0	70	30	0	65	35	0	0	31	_65_	4	0	Lowest
0	43	34	4	22	38	18	2	23	35	19	5	Sub-total
0	1.9	53	88	9	27	22	0	o	15	27	13	Highest Third Girls
0	75	25	0	04	60	0	0	9	69	25	0	Middle Third
77.	.66	1.7	0	87	_88_	0	0		72	II	0	Lowest
€	38	89	9	28	94	. 7.	0	. 5	04	33	#	Sub-total
8	18	62	13	50	#8	25.	2	28	75	52	6	- Letel

The only usefulness and interest in this topic were found by highest third groups with the boys of that level experiencing difficulty with the work. Majorities of the lowest groups decided that they knew the work already although how they could have known it previously is a matter of conjecture.

Table 43. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "A Study of the Uses to Which

Man has Put Rocks."

			P	erce	ntage	s Gi	ving	Dif	ferer	nt Rat	tings	of	
	ex and ligence Group (1)	4 (<u>2</u>)	sefu 3 (3)	lnes 2 (4)	<u>1</u> (5)	D 4 (6)	iffi 3 (7)	cult; 2 (8)	1 (9)	(10)	Into 3 (11)	erest 2 (12)	<u>1</u> (13)
Boys	Highest Third	38	54	8	0	33	50	17	0	21	46	21	12
Boys	Middle Third	0	6	46	48	77	23	0	0	89	11	0	0
	Lowest Third	0	0	44	56	30	70	0	0	30	61	9	0
	Sub-total Highest	9	15	27	30	42	36	4	1	43	28	7	4 5
Girls	Third	28	47	25	0	0	25	66	9	25	75	0	0
	Third Lowest	0	0	13	87	41	47	12	0	69	28	3	0
	Third	0	6	72	22	28	72	0	0	6	50	33	11
	Sub-total	9	6	23	32	18	36	25	2	31	42	7	2
!	Total -	18	21	50	62	60	72	29	3	74	70	14	6

This work was of greatest interest to middle third groups, although the boys found it difficult. Greatest usefulness was found by the highest thirds. No definite majority of the grade chose any rating.

Table 43. Opinions of Bighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Uses to Which
Man has Put Rocks."

			q	erce	rtage	e Gi	gair	nic	tere'	it Rat	ings	To	estate of the second
Intelli	gence Group	- 1h	-	(4)	1	1	3	(8)	I.	(OT)	3	(12)	(13)
	Highest Third	38	54	8	0	33	50	17	0	22	94	IS	SI
Boys	Middle Third	0	9	46	48 ,	Let.	23	0	0	68	LI	0	0
	Lowest	0	0	44	56	30	07	0	0	30	61	8	0
2	Letot-du	6	15	73	30	42	36	4	I	43	28	7	4
Girls	Highest Third	89	L.t	25	0	0	25	99	6	25	El	0	0
02. 3.4. V	Middle Third	0	0	13	78	Τħ	74	12	0	69	88	E	0
	Lowest Third	0	9	37	SS	88	27	0	0	9	50	33	The part of
8	ub-total	9	9	83	32	18	36	25	S	31	24	7	
or	- Lej	18	IS	50	62	60	27	29	3	47	70	4T	6

This work was of greatest interest to middle third groups, although the boys found it difficult. Greatest usefulness was found by the highest thirds. No definite majority of the grade chose any rating.

Table 44. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "Visual Materials Illustrating
the Effects of Weathering Agents upon the Earth."

			P	erce	ntage	es Gi	ving	Dif:	fere	nt Rat	tings	of	NE CARLOS COM
	ex and ligence Group	4 (2)	sefu: 3 (3)	lnes: 2 (4)	1 (5)	(6)	(7)	cult; 2 (8)	1 (9)	4 (10)	Inte 3 (11)	2 (12)	1 (13)
Dama	Highest Third	54	42	4	0	0	21	75	4	8	58	30	<u> 4</u>
Boys	Middle Third		0	50	50	0	83	17	0	0	17	74	9
	Lowest Third	0	9	61	30	22	78	0	0	0	17	78	5
	Sub-total		12	32	24	5	52	24	1	2	24	49	5
Ginla	Highest Third	19	63	1 5	3	0	69	31	0	13	87	20	0
Girls	Middle Third	0	3	72	25	16	82	2	0	0	25	75	0
	Lowest Third	0	22	67	11	67	33	0	0	0	17	72	11
	Sub-total			39	11	7	55	11	0	4	39	37	2
,	Fotal -	19	19	71	35	22	107	35	1	6	63	86	7

Little real use was found for this item by middle or lowest groups.

Least difficulty was experienced by highest third boys although the highest third girls found it the most interesting. The work was definitely of little interest to middle and lowest groups.

Table 44. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Visual Materials Illustrating
the Effects of Weathering Agents upon the Earth."

		agai				Marie .						Sex and
工	erest 2	Inte 3	4		2 2 2	iffic	4			seful 3		Intelligence Group
(13)		(11)	(10)					(5)				(I)
47	30	58	8	ħ	75	21	0	0	4	24	54	
6	47	17	0	0	77	83	0	50.	50	0	0	Boys Middle Third
2	87	77	0	0	0	87	22	30	<u>61</u>	9	0	Lowest
5	647	24	S	I	45	52	5	45	32	12	13	Sub-total
0	0	78	13	0	31	69	0	3	15	63	19	Highest Third Girls
0	75	25	0	0	2	88	91	25	27	3	0	Middle Third
11	27	7.1	0	0	0	EE	67	EE.	67	22	0	Lowest Third
9	37	39	15	0	11	55	Ţ.	ŢĻ	39	7	9	Sub-total
60	38	63	3	r	25	707	00	25	77	or	OF	- Tetom

Little real use was found for this item by middle or lowest groups.

Least difficulty was experienced by highest third boys although the highest third girls found it the most interesting. The work was definitely of little interest to middle and lowest groups.

Table 45. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study and Discussion of
the Work of Underground Water."

			P	erce	ntage	s Gi	ving	Dif	fere	nt Rat	tings	of	
	ex and ligence Group	4 (2)	Usef 3 (3)	ulne: 2 (4)	1 (5)	D: 4	1ff1 3	(8)	y 1 (9)	4 (10)	Inte 3 (11)	2 (12)	1 (13)
	Highest Third	8	63	25	4	0	4	42	54	8	8	50	34
Boys	Middle Third	0	9	86	5	0	20	80	0	0	71	29	0
	Lowest Third	0	17	74	9	26	74	0	0	52	48	0	0
	Sub-total	2	22	52	4	6	25	38	13	14	38	55	8
Ginle	Highest Third	3	94	3	0	22	78	0	0	0	78	22	0
Girls	Middle Third	0	28	72	0	0	40	60	0	6	85	9	0
	Lowest Third	0	0	61	39	39	61	0	0	17	66	17	0
	Sub-total		21	48	11	8	36	37	3	17	58	4	θ
	Sub-total Total -		43	100	15	14	61	75	16	31	96	26	8

Highest third girls were almost unanimous in finding usefulness in this topic. To all other groups it was of little use. Lowest groups found the work difficult. Greatest interest was voted by the lowest third groups.

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Table 45. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study and Discussion of
the Work of Underground Water."

	20	agnit	tsA to	ferer	Dif	gaiv	s Gi	ntage	erce	P		
1	taans	Inte	ή	Z V	oult 2	1991	T ₄	88	ulne 2	Usef		Sex and Intelligence Group
(13)	(31)		(01)	(9)	(8)	(7)	(9)	(5)	(4)	(8)	(2)	(1)
भह	50	8	8	45	42	4.	0	15	25	63	8	Highest Third
0	29	71	0	0	08	02	0	5	86	6	0	Boys Middle Third
0	0	48	52	0	0	45	26	9	74	7.1	0	Lowest
8	22	38	4工	13	38	25	9	4	52	22	9	Sub-total
0	22	87	0	0	0	78	SS	0	3	46	8	Highest Third Girls
0	6	85	9	0	60	04	0	0-	27	88	0	Middle Third
0	. 27.	99	T.F.	0	0	19	39	39	61	0	0	Lowest Third
9	4	58	27	3.	37	36	8	11	84	IS		Sub-totel
8	26	96	31	16	75	61	工件	25	100	43	3	Totel -

Highest third girls were almost unanimous in finding usefulness in this topic. To all other groups it was of little use. Lowest groups found the work difficult. Greatest interest was voted by the lovest

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Table 46. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Microscope Class Work in
Preparation and Examination of Plant Cell Slides."

			P	erce	ntage	s Gi	ving	g Dif	fere	nt Rai	tings	of	
	ex and ligence Group	4 (2)	Usef 3 (3)	ulne 2 (4)	ss 1 (5)	D 4 (6)		cult 2 (8)	y (9)	<u>4</u> (10)	Into 3 (11)	erest 2 (12)	1 (13)
Boys	Highest Third	21	58	13	8	0	13	66	21	22	78	0	0
Logo	Middle Third	6	86	8	0	0	6	82	12	12	74	14	0
	Lowest Third	0	13	78	9	0	65	35	0	0	35	65	0
	Sub-total	7	47	23	3	0	20	52	9	11	48	20	0
Girls	Highest Third		44	3	0	0	25	75	0	3	79	12	6
GILIB	Middle Third	13	75	12	0	0	19	81	0	41	41	18	0
	Lowest Third	0	17	72	11	17	72	11	0	0	22	72	6
	Sub-total	21	42	18	1	3	27	52	0	14	41	23	3
	Potal -	28	89	41	4	3	47	104	9	25	89	43	3

Lowest groups considered this activity of little use or interest and difficult to handle. Boys and girls were in close agreement on numbers choosing the different ratings. Table 46. Opinions of Highth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Histoscope Class Work in
Preparation and Examination of Flant Cell Dides."

Percentages Giving Different Ratings of

Sex a	nd nee Group		User 3			C A	iffi	cult 2	y	4	Into	rest	ī
.)		-			1					entering the		(0.0)	
ave C	Highest Third	IS	58	13	8	0	6.0	99	23	33	78		0
Boys	Middle	3	98	8	0	0	6	23	SI	3.1	47	ħŢ.	O.
	Lowest Tilrd	0	13	78	9	0.6	65	35	0	0	35%	20	0
lu8	-total	7	2h	23	8	0	09	SZ	6	LI	48	20	0
Girls	Highest .	53	44	8	0	0	25	75	0	8	79	LP	6
arito	Middle	13	75	16	0	0	1.9	18	0	Tħ	Ţή	18	0
	Lowest	0_	77.	. 27	CI	. V.C.	97	LL	0.	0	33	_ SY	<u> </u>
Sui	Lotel -	IS	42	J.B.	1	8	7.8	-97	0	45	工件	23	Ē
Tota	- [83	68	43.	4	8	74	HOL	6	25	68	43	3

Lovest groups considered this activity of little use or interest and difficult to handle. Boys and girls were in close agreement on numbers choosing the different retings.

Table 47. Opinions of Eighth-grade Boys and Girls of Different Ability Levels Concerning the Usefulness, Difficulty, and Interest of the topic: "A Study of Resemblances and Differences of Organic and Inorganic Things."

			P	erce	ntage	s Gi	ving	Diff	erer	nt Rat	tings	of	
	ex and ligence Group	<u>4</u> (<u>2)</u>	Usef 3 (3)	ulne: 2 (4)	ss 1 (5)	D 4 (6)	iffi 3 (7)	culty 2 (8)	(<u>1</u> (<u>9</u>)	(10)	Inter 3 (11)	rest 2 (12)	<u>1</u> (13)
Down	Highest Third	63	33	4	0	0	25	67	8	8	75	17	0
Boys	Middle Third	17	77	6	0	0	17	77	6	3	34	63	0
	Lowest Third	4	48	48	0	13	70	17	0	0	30	70	0
	Sub-total		46	14	0	3	28	50	4	3	36	41	0
Girls	Highest Third	56	114	0	0	0	22	78	0	66	34	0	0
GILES	Middle Third	22	78	0	0	0	47	53	0	0	22	78	0
	Lowest Third	0	11	67	21	6	67	27	0	0	17	66	17
	25	40	12	4	1	34	47	0	21	21	37	3	
1	Total -	47	86	26	4	4	62	97	4	24	57	78	3

Highest groups found this work very useful. Lowest groups experienced the most difficulty. Least interest was voted by middle and lowest groups.

Table 47. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Resemblances
and Differences of Organic and Inorganic Things."

Sex and Interest Difficulty Usefulness Intelligence Group Highest 17 75 8 4 Phird 0 0 Middle 9 77 17 9 0 LI Third Lowest 17 48 4 70 70 Maire 工村 4 88 3 中工 46 36 0 Sub-total Highest 78 मेम Third SS 0 0 Girls Middle 47 78 0 0 22 Bride Lowest 17 0 67 67 II Dride

Percentages Giving Different Ratings of

74

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Highest groups found this work very useful. Lowest groups experienced the most difficulty. Lesst interest was voted by middle and lowest groups.

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Sub-total

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Table 48. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Science's
Classification of Life upon the Earth."

			P	erce	ntage	s Gi	ving	Dif	fere	nt Rai	tings	of	
	ex and ligence Group	<u>4</u> (<u>2)</u>	Usef	ulne 2 (4)	1 (5)	D. 4 (6)	1ff1 3 (7)	cult 2 (8)	y 1 (9)	(10)	Into 3 (11)	erest 2 (12)	1 (13)
Boys	Highest Third	25	67	4	4	13	46	29	12	4	33	59	4
20,0	Middle Third	20	74	6	0	17	80	3	0	71	29	0	0
	Lowest Third	0	13	65	22	26	4	4	66	44	56	0	0
	Sub-total	13	45	18	6	15	40	9	20	34	20	12	1
Girls	Highest Third	66	28	6	0	16	84	0	0	63	37	0	0
GILIB	Middle Third	13	63	24	0	41	56	0	3	82	18	0	0
	Lowest Third	0	0	44	56	0	0	28	72	6	94	0	0
	Sub-total	25	29	17	10	18	45	5	12	47	12	0	0
7	Potal -	38	74	35	16	33	85	14	32	81	32	12	1

Lowest groups found this item of little or no use. A large percentage of the lowest groups decided that they knew the work already. The topic possessed marked interest for all except highest third boys.

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Table 48. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Science's
Classification of Life upon the Earth."

			q	ercei	otage	s Gi	ring	Diff	rerer	tsA di	agmit	To	
	sx and Ligence Group	#	Usef 3	ulner 2	as	D:	irric 3	sult;	I	47	Inte	rest	-
	(I)	No. of Concession, Name of Street, or other Persons, Name of Street, or ot	(8)		(5)	MA COLUMN	(7)	A STATE OF THE PARTY OF THE PAR	***********	(01)	(II)	A COLOR MAN TO SERVICE A CALCALLA	(13)
12000	Highest Third	25	67	žţ.	ħ	13	94	62	21	47	33	59	2
Boys	Middle Third	20	47	9	0	7.7	08	3	0	71	29	0	0
	Lowest Third	0	13	65	99	26	4	4	99	44	56	0	0
	Sub-total	13	45	18	9	15	40	6	0.5	34	20	SI	ľ
Girls	Highest Third	99	28	9	0	16	48	0	0	63	37	0	O
GTIID	Middle Third	13	63	49	0	工力	56	0	3	28	18	0	0
	Lowest	0	0	44	56	0	0	89	72	9	46	0	0

Lowest groups found this item of little or no use. A large percentage of the lowest groups decided that they knew the work already. The topic possessed marked interest for all except highest third boys.

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35 16

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Sub-total

Total -

Table 49. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "A Study of the Life History

of the Frog and Experiments in the Hatching of Frog Eggs."

			Pe	erce	ntage	s Gi	ving	Dif:	ferer	nt Rat	tings	of	
	ex and ligence Group	4 (2)	Useft 3 (3)	2 (4)	1 (5)	D: 4 (6)	(7)	(8)	1 (9)	4 (10)	Inte 3 (11)	2 (12)	<u>1</u> (13)
Воуз	Highest Third	17	29	42	12	25	58	17	0	21	50	4	25
Doys	Middle Third	0	3	66	31	26	74	0	0	0	17	83	0
	Lowest Third	0	0	44	56	50	50	0	0	0	9	74	17
	Sub-total	4	8	43	23	26	50	5	0	5	19	47	6
Girls	Highest Third	9	19	41	31	6	56	38	0	0	56	38	6
GILTS	Middle Third	8	41	41	10	63	37	0	0	0	25	75	0
	Lowest Third	0	13	57	30	28	67	5	0	0	17	72	11
	Sub-total	5	22	40	14	27	42	13	0	0	29	49	4
	Total -	9	30	83	37	53	92	18	0	5	48	96	10

This work presented less difficulty to highest third groups and was definitely of greater interest to them. A majority of the grade judged the material of little interest or usefulness.

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Table 49. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "A Study of the Life History

of the Frog and Experiments in the Hatching of Frog Eggs."

	30	agni:	te Ret	derei	Diff	gniv	s Giv	ntege	erce	Pe		
I	erest 2		ħ		oult;	iffi 3	D:	as 1	lne 2	Jseft 3	1	Sex and Intelligence Group
	(31)		(10)									(I)
25	47	50	21	0	7.7.	58	25	12	24	68	77	
0	83	17	0	. 0	0	47	26	31	99	3	0	Boys Middle Third
77	47	9	0	0	0	50	50	56	44	0	0	Lowest
6	47	61	5	0	5	50	98	23	43	8	ħ	Sub-total
9	38	56	0	0	38	56	9	31	工力	61	6	Highest Third Girls
0	75	25	0	0	0	37	63	10	工业	Tή	8	Middle Third
LI	.72	17.	0	0	5	67	89	30	57	13	0	Lowest Third
4	64	29	0	0	13	94	27	ht	40	98	5	Sub-total

This work presented less difficulty to highest third groups and was definitely of greater interest to them. A majority of the grade judged the material of little interest or usefulness.

9 30 83 37

Total -

53 92 18

Table 50. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Study of Chemical Makeup
of Cells and Their Use of Food in Growth."

			Pe	erce	ntage	s Gi	ving	Dif	ferei	nt Rat	tings	of	
	ex and ligence Group	4	Usef	ulne:	ss 1	D:	iffi 3	cult;	y 1	4	Inte	erest	1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Boys	Highest Third	13	38	46	3	3	54	29	14	0	54	33	13
Doys	Middle Third	0	22	78	0	0	23	77	0	0	9	69	22
	Lowest Third	0	13	78	9	17	83	0	0	0	22	78	0
	Sub-total	3	19	56	4	4	40	35	3	0	21	50	8
Girls	Highest Third	63	34	3	0	6	76	19	0	0	41	59	0
411.10	Middle Third	0	19	75	6	0	41	59	0	0	22	75	3
	Lowest Third	0	22	78	0	22	78	0	0	0	22	72	6
	Sub-total	20	21	39	2	6	51	25	0	0	24	56	2
1	Total -	23	40	95	6	10	91	60	3	0	45	106	10

Highest third girls found this study very useful, difficult to do but of little interest as handled. Majorities of other groups saw little use or interest. Lowest groups experienced greatest difficulty.

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Table 50. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Study of Chemical Makeup
of Cells and Their Use of Food in Growth."

	no	agni	teff t	feren	Dif	ring	s Giv	tage	ercer	Pe		
(13)	rest 2	Inte 3 (11)	4	<u></u>	S	1991	15	I	ulnes 2 (4)	3	4	Sex and Intelligence Group (1)
J. Circle	- label				*****	The stage of the s						Highest
13	33	54	0	市工	59	54	3	3	94	38	13	Third
22	69	6	0	0	77	23	0	0	78	22	0	Middle Third
0	78	99	0	0	0	83	17	6	78	13	0	Lowest
8	50	22	0	3	35	40	46	4	56	19	3	Sub-total
0	59	Th	0	0	19	76	9	0	3	34	63	Highest Third
3	75	SS	0	0	59	工力	0	6	75	61	0	Girls Middle Third
9	27	SS	0	0	0	78	22	0	87	22	0	Lowest Third
\$	56	49	0	0	25	51	9	S	39	IS	09	Sub-total

Highest third girls found this study very useful, difficult to do but of little interest as handled. Majorities of other groups saw little use or interest. Lowest groups experienced greatest difficulty.

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23 40 95 6 10 91 60 3 0 45 106

Table 51. Opinions of Eighth-Grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Resemblances and
Differences of Plants and Animals."

			P	erce	ntage	s Gi	ving	Diff	ferei	nt Rat	ings	of	
	ex and ligence Group	<u>4</u> (<u>2</u>)	Usef 3 (3)	ulne: 2 (4)	ss 1 (5)	D. 4 (6)	1ff1 3 (7)	culty 2 (8)	(9)	(10)	Inte 3 (11)	erest 2 (12)	<u>1</u> (13)
Boys	Highest Third	25	54	13	8	0	42	58	0	21	58	17	4
Doys	Middle Third	0	37	63	0	0	26	66	8	0	31	66	3
	Lowest Third	30	70	0	0	17	78	5	0	0	17	83	0
	Sub-total	13	42	24	1	4	37	37	2	5	29	43	2
Girls	Highest Third	72	28	0	0	0	22	69	9	13	75	9	3
dirio	Middle Third	19	53	28	0	6	41	53	0	0	28	72	0
	Lowest Third	22	72	6	0	11	83	6	0	0	17	78	5
	Sub-total	33	39	10	0	4	35	40	2	4	36	40	2
	Fotal -	46	81	34	51	8	72	77	4	9	65	83	4

Only middle third hoys failed to see usefulness in this activity. Lowest third groups experienced the greatest difficulty. Upper groups found the work of greatest interest. Girls and boys tallied closely as to numbers choosing different ratings.

Table 51. Opinions of Eighth-Grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Resemblances and
Differences of Plants and Animals."

	q	erce	ntage	a Gi	gniv	Dif	erer	teA jo	agnit	20	
4	Usef 3	uIne 2	as I	C 4	1111	cult;	1	4	Inte	daem	Ţ
(2)) (3)	(事)	(a)	(6)	(7)	(8)	(6)	(01)	(II)	(12)	(13)
25	54	13	8	0	24	58	0	22	58	17	4
0	37	63	0	0	26	99	8	0	31	99	3
30	70	0	0	77	87	5	0	0	17	83	0
13	34	112	I	47	37	37	S	5	29	54	S
27	28	0	0	0	22	69	6	13	75	6	E.
19	53	88	0	9	Th	53	0	0	88	72	0
22	72	9	0	II	83	9	0	0	77	87	_5_
33	39	10	0	4	35	04	2	11	36	04	<u>S</u>
94	T8	34	I.	8	57	77	1	6	65	83	17

Only middle third boys failed to see usefulness in this activity.

Lowest third groups experienced the greatest difficulty. Upper groups found the work of greatest interest. Girls and boys tallied closely as to numbers choosing different ratings.

Table 52. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Study of the Parts of a
Plant."

			P	erce	ntage	s Gi	ving	Diff	ferer	nt Rat	ings	of	
	ex and ligence Group	<u>4</u> (2)	Usef 3 (3)	ulne: 2 (4)	1 (5)	4 (6)	(7)	(8)	(9)	<u>4</u> (10)	Inter 3 (11)	2	<u>1</u> (13)
Pows	Highest Third	29	54	17	0	13	58	25	4	4	21	54	21
Boys	Middle Third	0	6	49	45	14	77	9	0	0	17	83	. 10
	Lowest Third	0	0	35	65	22	74	4	0	0	22	78	0
	Sub-total	7	15	28	30	13	58	9	1	1	16	59	3
Girls	Highest Third	0	34	56	10	10	90	0	0	0	9	82	9
GILTS	Middle Third	0	16	56	38	19	78	3	0	0	9	82	19
	Lowest Third	0	0	28	72	28	61	11	0	0	28	72	0
	Sub-total	0	13	41	28	14	64	3	0	0	11	65	6
	Total -	7	28	69	58	27	122	12	1	1	27	124	9

This work in botany fundamentals found greatest usefulness with highest third boys and least with lowest third boys, and girls.

Majorities of all groups judged the material of little interest and and difficult.

Table 52. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "Study of the Parts of a
Plant."

- 10 10 1	to	tings	it Rai	feren	Dif	gniv	to e	ntage	erce	q		
<u>1</u> (13)		Interes (11)	4	-	S	3 (7)	4	-	S	3	4	Sex and Intelligence Group (1)
IS	54	21	17	47	25	58	13	0	77	54	29	Highest Third
0 .	83	7.1	0	0	6	77	和工	45	64	9	0	Boys Middle Third
0	87	SS	0	0	4	477	22	65	35	0	0	Lowest
3	59	16	I	1	6	58	13	30	28	15	7	Sub-total.
6	82	6	0	0	0	90	10	10	56	34	0	Highest Third
6	s8	6	0	0	3	87	19	38	56	9	0	Middle Third
0	27	88	0	0	II	61	88	72	89	0	0	Lowest
9	65	11	0	0	3	49	14	88	工井	13	. 0	Istof-du8
6	124	75	I	1	12	122	75	58	69	88	7	- Latofi

This work in botany fundamentals found greatest usefulness with highest third boys and least with lowest third boys, and girls.

Majorities of all groups judged the material of little interest and and difficult.

Table 53. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Parts
of a Flower."

						~ (13		Dag	e	4 Dad			
			r	erce	ntage	S G1	ving	DII	rerei	it Rei	ings	OI	
	ex and ligence Group (1)	<u>4</u> (2)	Use 3	fuln 2) (4	ess 1) (5)	(6))iffi 3 (7)	(8)	(9)	(10)	Int. 3 (11)	erest 2 (12)	(13)
Boys	Highest Third	13	63	13	11	17	50	25	8	4	17	67	12
Doys	Middle Third	0	0	29	71	19	83	8	0	0	29	74	17
	Lowest Third	0	22	74	0	74	26	0	0	6	44	50	0
	Sub-total	3	20	29	26	24	43	8	1	2	17	54	6
Girls	Highest Third	0	19	53	28	6	88	86	0	0	16	82	12
422 20	Middle Third	0	19	78	3	38	62	0	0	0	13	72	15
	Lowest Third	0	17	78	5	33	67	0	0	0	17	78	5
	Sub-total	0	15	56	11	20	60	2	0	0	9	63	10
	Total -	3	35	85	37	44	103	10	1	2	26	117	16

Highest third boys voted this topic most useful. Highest third girls found it difficult and of little interest. The latter opinion was held by all other groups. It is worth noting that middle third boys considered this item of no use at all.

Table 53. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Parts
of a Flower."

	20	agaid	tsA t	deren:	Diff	Suiv	10 a	ntages	erce	9		
(13)	erest 2 (12)	3	(10)	I	2 2 (8)	1111(3 (7)	77	ess 1 (5)	fuln 2 (4	3	(2)	Sex and Intelligence Group (1)
12	67	17	45	8	25	50	17	TI	13	63	13	Highest Third Boys
77	47	6	0	0	8	83	6	17	29	0	0	Middle Third
0	50	44	9	0	0	26	47	0	47	22	0	Lowest
9	45	17	2	I	8	43	24	26	29	09	3	Sub-total
J.C.	82	9	0	0	9	88	9	89	53	61	0	Highest Third Girls
15	72	13	0	0	0	62	38	3	87	19	0	Middle Third
	78	7.1	0	0	0	67	33	5	87	ZT.	0	Lowest
10.	63	6	0	0	S	60	00	11	56	15	0	Sub-total
16	717	26	2	I	10	201	市市	37	85	35	3	Total -

Highest third boys voted this topic most useful. Highest third girls found it difficult and of little interest. The latter opinion was held by all other groups. It is worth noting that middle third boys considered this item of no use at all.

Table 54. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Seed Production
in Flowers."

			P	erce	ntage	s Gi	ving	Difi	erer	nt Rat	ings	of	
	ex and ligence Group	4 (2)	Usef	ulne: 2 (4)	1 (5)	D: 4 (6)	1ffi 3 (7)	2 (8)	(9)	(10)	Inte 3 (11)	erest 2 (12)	<u>1</u> (13)
Boiss	Highest Third	8	71	21	0	8	64	88	0	13	46	21	20
Boys	Middle Third	0	9	57	34	12	80	8	ō	0	23	74	3
	Lowest Third	0	9	74	17	22	78	0	0	0	17	66	17
	Sub-total	2	22	42	15	11	47	24	0	3	23	50	4
Girls	Highest Third	0	16	53	31	0	6	88	6	0	19	75	6
GILIS	Middle Third	0	9	66	25	16	81	3	0	0	16	75	9
	Lowest Third	0	30	70	0	44	56	0	0	0	22	78	0
	Sub-total	0	15	49	17	13	38	29	2	0	15	62	5
,	rotal -	2	37	91	32	24	85	53	2	3	38	112	9

Greatest usefulness and interest in this material was found by highest third boys although they found the work as easy as highest third girls. Majorities of all other groups found the work difficult and of little interest.

Table 54. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Seed Production
in Flowers."

			0.0.0.0		0 - 7 - 6	A-1-10-0								
	fe.	jaete		tsA to	7	t.Lus	1111	D		line	Jseft		Sex and Intelligence Group	
	(13)	(12)	(11)	(10)	(6)	(8)	(7)	(9)	(5)	(4)	(3)	(8)	(1)	
	20	23	94	13	0	88	İŢ.	8	0	IS	77	8	Highest Third	
	3	47	23	0.	0	8	08	12	34	57	6	0	Boys Middle Third	
	TI	20	17	0	0	0	87	22	7.7	47	6	0	Lowest	
	14	50	23	3	0	42	47	II	15	St	22	S	Sub-total	
	9	75	61	0	9	88	6	0	31	53	16	0	Highest Third Girls	
	6	75	16	0	0	3	18	16	25	66	6	0	Middle Third	
	0	78	22	0	0	0	56	44	0	70	30	0	Lovest	
400	<u> </u>	59	3.5	0	S	62	38	13	77	64	15	0	Sub-total	
	6	SII	38	3	2	53	85	48	32	16	37	S	- LejoT .	

Greatest usefulness and interest in this material was found by highest third boys although they found the work as easy as highest third girls. Majorities of all other groups found the work difficult and of little interest.

Table 55. Opinions of Eighth-grade Boys and Girls of Different

Ability Levels Concerning the Usefulness, Difficulty,

and Interest of the topic: "A Study of Man's Discoveries

and Accomplishments in Artificial Pollenation."

			P	erce	ntage	s Gi	ving	Dif	fere:	nt Ra	tings	of	
	ex and ligence Group		Usef	ulne	SS	I	iffi	cult	y			erest	
Intel	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Highest Third	8	63	25	4	0	63	33	4	8	25	46	21
Воуз	Middle Third	25	20	71	9	0	91	9	0	8	17	66	17
	Lowest Third	0	22	70	8	39	61	74	0	0	0	57	43
	Sub-total	2	27	47	6	9	58	10	1.	2	12	47	19
	Highest Third		34	53	10	16	69	12	3	0	60	40	0
Girls	Girls		19	81	0	16	81	53	38	0	6	69	25
			0	56	44	67	33	0	13	0	17	8e 77	6
	Sub-total		17	53	11	22	54	5	1	0	24	48	9
	Total -	-3	44	100	17	31	112	15	2	2	36	95	28
		6				E							

Highest third boys found greatest usefulness. All groups considered the work difficult and only highest third girls found it interesting.

Boys and girls were in fairly close agreement as to ratings.

seful. All other groups voted the subject of little use, or interest.

Pable 55. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of Man's Discoveries
and Accomplishments in Artificial Pollenation."

			9	ercei	ntage	e Gi	ving	Diff	erer	te Ret	agni	20	received
	x and igence Group	4	Jsef 3	ulner 2	2	4	1111	2	T	4	3		Ī
)	(1)	(3)	(3)	(4)	(5)	(9)	(7)	(8)	(8)	(01)	(11)	(ST)	(13)
Boys	Highest Third	8	63	25	ħ	0	63	33	ή	8	25	94	22
- 40-	Middle Third	0	09	71	6	0	16	6	0	0	77	99	7.1
	Lovest	0	SS	70	8	39	61	0	0	0	0	57	. हम
B	Sub-totel	2	75	47	9	-6	58	OL	1	2	12	47	19
Girls	Highest Third	3	34	53	OI	16	69	12	3	0	60	04	0
	Middle	0	61	18	0	16	18	3	0	0	9	69	25
	Lowest	0	0	56	拉拉	67	33	0	0	0	77.	77	9
3	Sub-total	I	17	53	II	22	54	2	I	0	149	48	2
T	otel -	3	44	001	17	31	SII	15	S	S	36	95	28

Highest third boys found greatest usefulness. All groups considered the work difficult and only highest third girls found it interesting. Boys and girls were in fairly close agreement as to ratings.

Table 56. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Work of
Bees in Pollenation."

	ex and Ligence Group	h	Usef	ulne:	33	D	iffi	cult;	7	11	Int	erest	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)		(12)	(13)
D	Highest Third	25	50	25	0	0	0	63	37	8	84	4	4
Воуз	Middle Third	0	23	71	6	0	23	74	3	0	9	74	17
	Third Lowest Third Sub-total		9	78	13	17	78	5	0	0	9	87	4
	Third		21	49	5	4	26	42	10	2	22	47	7
Firls	Sub-total Highest Third		13	82	5	0	9	53	38	3	52	41	3
ATLIS	Middle Third	0	9	88	3	0	9	78	13	0	0	82	18
	Lowest Third	0	17	83	0	11	78	11	0	0	17	77	6
	Sub-total	0	10	69	3	2	20	34	16	1	17	43	8
	rotal .	6	31	113	8	6	46	76	26	3	39	90	15

Lowest third groups considered this work difficult and highest thirds voted it interesting. Highest third boys found the topic most useful. All other groups voted the subject of little use, or interest.

Table 56. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Work of
Bees in Pollenation."

	20	agai	isfi ju	nere	Diff	ring	s Giv	ntage	ercer	q	No. Design of	The Conference of the Conferen
£	freer	inte E	4	1	zaLu:	iffic 3	t Di		ulnes	lsef 3	il 2	Sex and Intelligence Group
(13)	(21)	(11)	(01)	-	(8)	(7)		-	(4)	(8)	(s)	(1)
4	4	48	8	37	63	0	0	0	25	50	25	Highest. Third
17	74	6	0	3	47	23	0	9	71	23	0	Boys Middle Third
41	78	6	0	0	5	78	17	13	78	9	0	Lovest
7	147	SS	2	10	24	26	4	5	64	ES	9	Sub-total
3	Th	52	3	38	53	6	0	5	82	13	0	Highest Third Girls
18	88	-0	0	13	78	6	0	3	88	6	0	elbbim bring
9	7.7	2.7	0	0	TI	78	II	0	83	17	0	Lovest
8	43	7.7		16	34	98	S	3	69	10	0	Sub-total
15	90	39	3	26	76	94	9	8	113	32	9	Total

Lowest third groups considered this work difficult and highest thirds voted it interesting. Highest third boys found the topic most useful. All other groups voted the subject of little use, or interest.

Table 57. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Parts of the
Human Body."

			P	erce	ntage	s G1	ving	Dif	fere	nt Rat	tings	of	
	ex and ligence Group	4	Useft 3	ulne:	33	D 4	1 ff 1	cult;	7 1	4	Inter	rest 2	1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Down	Highest Third	50	46	4	0	8	21	58	13	8	58	30	4
Boys	Middle Third	29	71	0	0	14	72	14	0	31	69	0	0
	Lowest Third	30	22	40	0	13	83	4	0	22	30	39	9
	Sub-total	29	41	12	0	10	47	22	3	18	45	14	2
Girls	Highest Third	66	34	0	0	13	85	2	0	13	87	0	0
GILIS	Middle Third	13	72	15	0	34	63	3	0	63	37	0	0
	Lowest Third	0	11	61	28	6	67	27	0	0	6	83	11
	Sub-total	25	36	16	5	16	59	7	0	24	40	15	2
	Potal -	54	77	28	5	26	106	29	3	42	85	29	4

This topic was judged of greatest use by highest third groups although the boys found it less difficult. The least interest or usefulness was found in the lowest third groups.

Table 57. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Parts of the
Human Body."

	20	agni:	it Ref	rerei	nic	Sula	e Gi	ntage	teore	q		
		Inter				1111		32-	entu	îesU		Sex and Intelligence Group
		(11)	(01)					(5)		N CONTRACTOR		(1)
15	30	58	8	13	88	21	S	0	4	94	50	Highest Third
0	0	69	31	0	14.	72	九工	0	0	. 17	62	Boys Middle Third
9	.39	30	SS	0	A	83	13	0	01/	22	08	Lowest
S	14	45	18	3	22	74	10	0	SI	TH	68	Sub-total
0	0	87	13	0	S	85	13	0	0	3th	66	Highest Third Girls
0	0	37	63	0	3	63	34	0	15	72	13	Middle
TT.	83	9	0	0	75	67	9	89	19	II	0	Lowest
S	15	04	NS.	0		59	15	5	16	36	25	Sub-total
22	29	85	42 :	3	68	301	26	5	88	77	54	Total -

This topic was judged of greatest use by highest third groups although the boys found it less difficult. The least interest or usefulness was found in the lowest third groups.

Table 58. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Work of Bones
and Muscles."

			Pe	erce	ntag	es G1	ving	Dif	fere	at Ra	tings	of	
	ex and ligence Group (1)	4 (2)	Useft 3	lne:	1 (5)	(6)	1991	cult;	1 (0)	(10)	Into 3 (11)	2 (12)	(13)
7	Highest Third	25	67	8	0	0	38	54	8	8	71	21	0
Boys	Middle Third	74	26	0	0	12	76	12	0	29	69	2	0
	Lowest Third	74	26	0	0	13	35	52	0	61	39	0	0
	Sub-total	49	31	2	0	7	43	29	2	26	50	5	0
Girls	Highest Third	38	60	2	0	6	78	16	0	16	84	0	0
	Middle Third	75	25	0	0	9	82	9	0	56	44	0	0
	Lowest Third	61	39	0	0	0	22	78	0	89	11	0	0
	Sub-total	47	34	1	0	5	55	22	0	39	43	0	0
	Total -	96	65	3	0	12	98	51	2	65	93	5	0

Middle and lowest thirds found this item very interesting although the latter group found it easy and very interesting. Majorities of both sexes rated the work very useful, difficult, and interesting. Ratings of boys and girls were in close agreement. Table 58. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Work of Bones
and Muscles."

	to	agnis	teR de	erer	Diff	antv	s Gi	ntage	erce	q		
(EI)	2 2 (12)	Inte	(0t) #	्हें) रे	culty 2 (8)	irri 3	(<u>9</u>)	ss (E)	alner 2 (4)	Teen	(S)	Sex and Intelligence Group (1)
0	£S.	72	8	8	54	38	0	0	8	67	25	Highest Third
0	S	69	29	0	12	76	12	0	0	26	47	Boys Middle Third
0	0	39	19	0	52	35	13	0	0	98	47	Lowest
0	ä	50	26	S	29	43	7	0	S	31	64	Sub-total
0	0	448	91	0	16	78	9	0	2	60	38	Highest Third Girls
0	0	i ii	56	0	6	28	6	0	0	25	75	Middle Third
0	0	II	68	0	78	22	0	0	0	39	<u>19</u>	Lowest
0	0	43	39	0	99	55	5	0	L	34	547	Sub-total
0	2	50	65	9	63	80	98	0	8	65	90	- rator

Middle and lowest thirds found this item very interesting although the latter group found it easy and very interesting. Majorities of both sexes rated the work very useful, difficult, and interesting.

Ratings of boys and girls were in close agreement.

Table 59. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Working of
Nerves."

	ez and		P	erce	ntage	es Gi	ving	Dif	fere	nt Ra	tings	of	
	ex and ligence Group	(4)	User 3	ulne:	35	1 4	iffi 3	cult;	y 1	4	Into	erest	1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Boys	Highest Third	50	25	25	0	0	25	50	25	29	50	21	0
Boys	Middle Third	14	83	3	0	20	74	6	0	17	71	9	.3
	Lowest Third	30	70	0	0	0	52	48	0	30	70	0	0
	Sub-total Highest Third	24	51	3	0	7	44	25	5	20	53	5	1
Oirls		3	69	28	0	28	69	3	0	19	81	0	0
Girls	Middle Third	44	50	6	0	16	82	2	0	34	60	6	0
	Third	22	78	0	0	0	11	78	11	39	50	11	0
	Sub-total	19	52	11	0	14	50	16	2	24	54	2	0
	Total -	43	103	14	0	21	94	41	7	44	107	7	1

Strong majorities of the entire grade rated this topic useful, difficult and interesting. Greatest use was found by middle and lowest groups. Lowest thirds and highest third boys considered the subject easy; one-fourth of the highest boys' group knew the subject already.

Table 59. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Working of
Nerves."

	îo	tings	teA to	rerer	Dif	gniv	es Gi	ntege	ercer	Pe			
1	trest	Inte	ħ	I	oult;	1111	D,			Useft	計	Sex and Intelligence Group	
	(31)	(11)	(01)	(6)		(7)	(9)	(5)	(4)	(3)	(2)		
0	21	50	29	25	50	25	0	0	25	25	50	Highest Third	
3	6	71	7.7	0	6	724	20	0	3	83	4T	Boys Middle Third	
0	0	70	30	0	84	52	0	0	0	07	30	Lowest	
1	5	53	00	5	25	44	7	0	3	51	24	Istot-du2	
0	0	18	61	0	3	69	28	0	28	69	3	Highest Third Girls	
0	9	60	34	0	2	82	91	0	9	50	排排	elbblM	
0	11	50	39	11	87	11	0	0	0	78	22	Lowest	
0	S	54	45	2	16	50	14	0	II	52	19	Sub-total	
I	4,	107	44	7	Tħ	46	SI	0	4I	103	43	Total -	

Strong majorities of the entire grade rated this topic useful, difficult and interesting. Greatest use was found by middle and lowest groups. Lowest thirds and highest third boys considered the subject easy; one-fourth of the highest boys' group knew the subject already.

Table 60. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Effect of
Tobacco upon the Body."

	ex and		Track	-7 m m							Tuck		
Tutel	ligence Group	4	Useft 3	5 True	1	4	3	icult 2	y 1	4	3	erest	1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Воуз	Highest Third	42	50	8	0	0	25	71	4	42	46	12	0
Doys	Middle Third	14	77	9	0	0	20	74	6	23	77	0	0
	Lowest Third	35	65		0	0	9	65	26	13	57	30	0
	Sub-total	23	54	4	0	0	15	58	9	21	51	7	0
Girls	Highest Third	22	66	9	3	0	6	88	6	34	66	0	0
GILIS	Middle Third	41	59	0	0	0	31	60	9	0	78	22	0
	Lowest Third	22	78	0	0	0	22	78	0	22	78	0	0
	Sub-total	24	53	3	1	0	16	61	5	15	59	7	0
	Potal -	47	107	7	1	0	31	119	14	36	110	14	0

This material was of decided usefulness to all but eight pupils in the entire grade. Heavy majorities rated it easy and interesting.

of all groups found it easy or decided that they knew it already. Only

thirteen in the grade gave it a low interest rating

Table 60. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Effect of
Tobacco upon the Body."

			P	ercei	ıtage	s Gi	ring	Dif	fere	efi de	tings	20	
	ex and Ligence Group	4	Usef	llne:	as	D:	1991	cult;	7	ąl.	Inte	deete	ſ
A . A . A . A . A . A . A . A . A . A .	(1)	(2)	The second second	-	(5)	(9)	(2)	(8)	(0)	(01)	(II)	THE PERSON NAMED IN	(13)
Pore	Highest Third	24	50	8	0	0	25	77	ħ	टेर्न	94	12	0
Boys	Middle Third	机	17	6	0	0	20	47	9	23	lake	0	0
	Lowest	35	65	0	0	0	9	65	26	13	57	30	0
	Sub-total	23	45	#	0	0	15	58	6	IS	19	7	0
Girls	Highest Taird	22	99	6	3	0	9	88	9	34	99	0	0
Chair Shale for	Middle	Th	59	0	0	0	31	60	6	0	78	SS	0
	Lovest	SS	87	0	0	0	SS	87	0	22	87	0	0
	Sub-total	45	53	3	I	0	16	19	3	15	52	7	0
	Potel -	74	107	7	1	0	32	511	14	36	OLL	4T	0

This material was of decided usefulness to all but eight pupils in the entire grade. Heavy majorities rated it easy and interesting.

Table 61. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Effect of
Alcohol upon the Body."

	ex and												
Intel	ligence Group	4	Usef	lne:	1	4 D	1111	cult	y 1	4	Inte	erest	1
	(1)	(5)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	-
Воуз	Highest Third	75	25	0	0	0	29	58	13	13	54	21	12
boys	Middle Third	40	60	0	0	0	23	74	3	31	63	6	0
	Lowest	48	52	0	0	0	9	65	26	30	65	5	0
	Sub-total	43	39	0	0	0	17	55	9	21	50	7	1
Girls	Highest Third	72	25	3	0	0	13	78	0	16	72	9	3
ATLTS	Middle Third	82	18	0	0	0	6	38	56	38	62	0	0
	Lowest	83	17	0	0	0	6	67	27	27	73	0	0
	Sub-total	64	17	1	0	0	7	50	25	22	56	4	1
	Potal -	107	56	1	0	0	24	105	34	43	106	11	2

Apparently the grade held the same opinions concerning alcohol as tobacco. All but one pupil rated it useful or very useful. Majorities of all groups found it easy or decided that they knew it already. Only thirteen in the grade gave it a low interest rating.

Table 61. Opinions of Highth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study of the Effect of
Alcohol upon the Body."

20	Ratings	Different	Giving	Percentages
----	---------	-----------	--------	-------------

64	Jaore	Inte	nt	y	cult	1771	Di	88	anLi	Usefu	rf.	Sex and Intelligence Group
(13)	(SI) S	(11)	(01)	(6)		(7)		(5)		(3)		(1)
SI	ES	54	13	13	58	29	0	0	0	25	75	Highest Third
0	9	63	31	3	47	23	0	0	0	60	04	Boys Middle
0	5	65	30	25	65	2	0	0	0	52	841	Lowest
I	7	50	12	6	55	17	0	0	.0	39	Ett	Sub-total
ε	6	57"	16	0	87	13	0	0	3	25	72	Highest Third Girls
0	0	62	38	56	38	9	0	0	0	81	82	Middle
0	0	73	79	27.5	67	9	0	0	0	ZT.	83	Jaevol Dilit
1	4	56	SS	25	50	7	0	0		7.7	43	Sub-total
2	11	106	83	48	201	45	0	0	I	56	107	- IstoT

Apparently the grade held the same opinions concerning alcohol as tobacco. All but one pupil rated it useful or very useful. Majorities of all groups found it easy or decided that they knew it already. Only thirteen in the grade gave it a low interest rating.

Table 62. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study and Discussion of
Tobacco and Alcohol Propaganda."

· In	Sex and	ougo	Pe	erce	ntage	s Gi	ving	Dif	fere	nt Ra	tings	of	
	sex and ligence Group	4	Jseft	lne:	38	D:	1111	cult;	y 1	4	Inte	erest	1
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	-	(13)
Boys	Highest Third	42	58	0	0	8	17	71	49	50	33	17	0
20,12	Middle Third	63	37	0	0	0	17	74	9	14	83	3	0
	Lowest Third	39	61	0	0	°4	17	75	47	9	78	13	0
	Sub-total	41	41	0	0	3	14	62	5	19	55	5	0
Girls	Highest Third	82	18	0	0	0	9	82	9	90	91	0	0
	Middle Third	56	44	0	0	0	41	53	6	28	72	0	0
	Lowest Third	44	56	0	0	0	11	33	56	11	78	11	0
	Sub-total	52	30	0	0	0	18	51	11	14	69	2	0
	Total -	93	71	0	0	3	32	113	16	33	124	7	0

This is the only item on the questionnaire in which no votes were cast for little or no use for the topic. All groups found the work easy with a majority of the lowest third girls conceding that they knew the material before. The work was of decided interest to all groups being of greatest interest to highest third boys.

Table 62. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, Difficulty,
and Interest of the topic: "A Study and Discussion of
Tobacco and Alcohol Propaganda."

to agains inereffic gairie agains	20	Percen
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	s and Ligence Group	朴	Usefu	lnes		D:	1991	cult	y ,	4	Inte	rest	r
)	(1)	ANN SERVICE	(3)	-	-			(8)		acceptor.	(11)	State of the State of the	(13)
Boys	Highest Third	24	58	0	0	8	7.7	71	ħ	50	33	7.7	0
2000	Middle Third	63	37	0	0	0	7.7	47	6	4C	83	3	0
	Lowest	32	19	0	0	ħ	TI	75	4	9	.78	13	0
2	Sub-total	Ih	Th	0	0	3	ħŢ	62	5	19	55	5	0
Girls	Highest Third	58	18	0	0	0	6	82	6	6	16	0	0
87,170	Middle	56	tyt	0	0	0	Th	53	9	89	72	0	0
	Lovest	村村	56	0	0	0	II	33	56	II.	78	11	0
2	Sub-total	52	30	0	0	0	18	51.	11	4I	69	S	0
T	- Isto!	93	71	0	0	3	32	EII	16	33	124	7	0

This is the only item on the questionnaire in which no votes were cast for little or no use for the topic. All groups found the work easy with a majority of the lowest third girls conceding that they knew the material before. The work was of decided interest to all groups being of greatest interest to highest third boys.

Table 63. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, and Interest
of Classroom Experiments and Demonstrations.

		P	erce	ntage	es G11	ving Diff	eren	t Ratin	ngs of	
	ex and ligence Group	(2)	(3)	lnes (4)	1 (5)	(1 0)	(11)	2	(13)	
	Highest	_ (3	1.13	1.13	131	(10)	1111	(13)	(33)	
Воуз	Third	71	29	0	0	100	0	0	0	
2030	Middle Third	74	26	0	0	91	9	0	0	
	Lowest	53	37	. 0		23	73	3	0	
	Third	61	39	0	0	83	17	0	0	
	Sub-total	56	26	0	0	75	7	0	0	
Girls	Highest Third	91	9	0	0	85	15	0	0	
GIFIS	Middle Third	85	15	0	0	88	12	0	0	
	Lowest	67	33	0	0	83	17	0	0	
	Sub-total	67	15	0	0	70	12	0	0	
7	Total -	123	41	0	0	145	19	0	0	

All groups rated this activity useful or very useful and interesting or very interesting.

Sable 63. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, and Interest
of Classroom Experiments and Demonstrations.

	20	ings o	t Rat:	erent	ns mer	TAT	0 86	ntage	erce	P		
***	16	(13)		Intere		. Startfur ethics	(2)	lnes (4)	User 3 (3)	(<u>京</u>)	Ser and Intelligence Group (1)	
		0	0	0	100		0	0	29	71	Highest falrd	
		0	0	6	16		0	0	26	47	Boys Middle Third	
	ton to a	0	0	7.5	83	* C +5 **	0	0	39	19	Lovest	
		0	0	7	75		0	0	26	56	Istot-dua	
		0	0	15	85		0	0	6	16	Highest Third Girls	
		0	0	12	88		0	0	15	85	Middle Third	
		0	0	17	83	With the sales	0	0	33	67	Lowest	
		0	0	12	70	direct division	0	0	15	67	Sub-total	
		0	0	19	145		0	0	I#	123	- LatoT	

All groups rated this activity useful or very useful and interesting or very interesting.

Table 64. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of Blackboard Diagrams.

			PoP	erce	ntages	Giving	Diff	erent	Rati
	ex and ligence Group	4	Usef	ulne:	33	4	Inte	erest	1
	(1)	(2)	(3)	(4)	(5)	(10)	(11)	(12)	(13)
Parra	Highest Third	63	37	0	0	42	58	0	0
Boys	Middle Third	63	37	ō	0	23	74	3	0
	Lowest Third	74	26	0	0	26	22	48	4
	Sub-total	56	26	0	0	24	45	12	1
Girls	Highest Third	25	75	0	0	9	91	0	0
GILIS	Middle Third	82	18	0	0	82	18	0	0
	Lowest Third	67	27	6	0	6	94	0	0
	Sub-total	46	35	1	0	30	52	0	0
1	Total -	102	61	1	0	54	97	12	1

Only one pupil found little use in this topic. All girls rated it interesting or very interesting. Lowest third boys found least interest.

Table 64. Opinions of Bighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of Blackboard Diagrams.

To	Ratinas	Different	Giving	Percentages

	ex and ligence Group	4	Tseft	lnes 2	1	4	Inte	rest	I.
	(1)	<u>(s)</u>	(3)	C. McGoddonorado-40	(5)	 (01)	(11)	(31)	(13)
n'ma S	Highest Third	63	37	0	0	24	58	0	0
Boys	Middle Third	63	37	0	0	23	74	2	0
	lowest Third	447	26	0	0	98	SS	84	4
2	Sub-total	56	26	0	0	412	45	22	I
Girls	Highest Third	25	75	0	0	6	16	0	0
had also all with hill	Middle	\$8	31	0	0	\$8	18	0	0
	Lovest	7.9	75	9	0	9	46	0	0
2	Sub-total	94	35	1	0	 30	52	0	0
oT	- Lato!	102	61	I	0	45	97	12	I

Only one pupil found little use in this topic. All girls rated it interesting or very interesting. Lowest third boys found least interest.

Table 65. Opinions of Eighth-grade Boys and Girls of Different Ability Levels Concerning the Usefulness and Interest of Bulletin Board Material.

	ex And	Pe	rcen	tages	Giving	Diff	erent	Ratio	ngs of
	ex and ligence Group	4	Usef 3	ulnes 2	ss 1	4	Int	erest	1
	(1)	(2)	(3)	(4)	(5)	(10)	(11)	(12)	(13)
Boys	Highest Third	63	29	8	0	54	46	0	0
Boys	Middle Third	31	69	0	0	63	37	0	0
	Lowest Third	61	39	0	0	78	22	0	0
	Sub-total	40	41	1	0	53	29	0	0
Girls	Highest Third	13	84	3	0	50	41	9	0
GILIO	Middle Third	16	84	0	0	56	44	0	0
	Lowest	50	38	6	0	72	22	6	0
	Sub-total	22	55	2	0	47	32	3	0
	Potal -	62	96	3	0	100	61	3	0

All but three pupils found use for this topic. By the same proportions they found the classroom bulletin board interesting.

All groups roted these untin-views, side very useful and

Table 65. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and
Interest of Bulletin Board Material.

0	igs of	Retin	duere	g Diffe	Giving	aega	rcent	Per		
	1	Jeere S	Inte	ží,	2	ilnes 2	Usefu 3	4	Sex and Intelligence Group	
	(13)	(12)	(11)	(00)	(5)	(4)	(3)	(2)	(1)	
	0	0	94	54	0	8	29	63	Highest Third Boys	
	0	0	37	63	0	0	69	31	Middle Third	
	0	0	22	78	0	0	32	19	Lowest	
	0	0	68	53	0	1	14	04	Sub-total	
	0	6	Ιħ	50	0	3	#8	13	Highest Third	
	0	0	.ph	56	0	0	#8	16	Middle	
	0	0	SS	72	0	9	38	50	Jeevol Third	
	0	3	32	74	0	9	55_	SS	Sub-total	
	0	3	61	100	0	3	96	62	Total -	

All but three pupils found use for this topic. By the same proportions they found the classroom bulletin board interesting.

Table 66. Opinions of Eighth-grade Boys and Girls of Different Ability Levels Concerning the Usefulness and Interest of Sound and Silent Films used in Class.

		Pe	rcen	tage	g Givi	ng Diffe	rent	Rati	ngs of
	ex and ligence Group	4	Usef	ulnes 2	33	4	Inte	erest	1
	(1)	(2)	(3)	(4)	(5)	(10)	(11)	(12)	(13)
Воуз	Highest Third	79	21	0	0	96	0	4	0
boys	Middle Third	89	11	0	0	97	3	0	0
	Lowest Third	87	13	0	0	92	8	0	0
	Sub-total	69	13	0	0	78	3	1	0
Girls	Highest Third	91	9	0	0	100	0	0	0
ATI.To	Middle Third	85	15	0	0	91	9	0	0
	Lowest Third	94	6	0	0	94	6	0	0
	Sub-total	73	9	0	0	78	4	0	0
	Total -	142	22	0	0	156	. 7	1)	0

All groups rated these audio-visual aids very useful and very interesting.

Table 66. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of Sound and Silent Films used in Class.

		Pe	reen	teget	rate a	ng Diffe	rent	Retin	20 88
	ex and ligence Group	1	range lancers	S	I	4	3	deest S	1
Acres (Armenta)	(1)	731	(3)	(1)	-15/-	1077	TI	(SI)	القفاد
Boys	Highest Third	79	IS	0	0	96	0	1,	0
Ca Carry	Middle Third	68	II	0	0	79	3	0	0
	Lowest	78	13	0	0	56	8	0	0
	Sub-total	69	13	0	0	87	3	I	0
Girls	Highest Third	16	6	0	0	001	0	0	0
hi da Luda bi	Middle Third	85	15	0	0	16	6	0	0
	Lowest Third	46	9	0	0	46	9	0	0
	Sub-total	73	0	0	0	87	ħ	0	0
	- Istol	SHE	SS	0	0	156	7	7	0

All groups rated these audio-visual aids very useful and very interesting.

Table 67. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of Textbooks used in Class.

		Pe	rcen	tages	Giving	Diffe	erent	Ratin	ags of
The state of the s	ex and ligence Group	(2)	Usef 3 (3)	ulnes 2 (4)	1 (5)	<u>4</u> (10)	Inte 3 (11)	2 (12)	1 (13)
Boys	Highest Third	54	29	17	0	63	25	6	6
20,5	Middle Third	77	23	0	0	20	74	6	0
	Lowest Third	0	52	48	0	0	4	65	31
	Sub-total	40	27	15	0	22	33	18	9
Girls	Highest Third	66	31	3	0	19	75	6	0
	Middle Third	66	31	3	0	19	62	19	0
	Lowest Third	0	72	28	0	0	17	72	11
	Sub-total	42	33	7	0	12	47	21	2
	Potal -	82	60	22	0	34	80	39	11

Lowest opinions of textbook usefulness and interest were held by lowest third groups.

Table 57. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of Textbooks used in Class.

20	bne xe	Pe	rcen	egai	Giving	Diff	rent	iijaA	20 880	* *
Intell	ilgence Group	Th.	3	alnes	I	ħ	3	rest	1	
EN SCHOOL SILVERS	(T)	(3)	(3)	(4)	(5)	(01)	(III)	(31)	1737	
Boys	Highest Third	42	62	77	0	63	25	9	6	
agoa	Middle	Lake,	23	0	0	09	45	9	0	
	Lowest	0	52	8#	0	0	4	59	32.	
	Sub-total	Où	75	15	0	22	33	31	6	
Girls	Highest Third	66	31	3	0	61	75	9	0	
61110	Middle	99	31	3	0	919	59	19	0	
	Jawol Third	0	27	28	0	0	_II_	27.	11	
	Sub-total	54	33	77	0	12	7.4	IS	S	
T	· Leto!	82	60	22	0	34	08	39	11	

Lowest opinions of textbook usefulness and interest were held by lowest third groups.

Table 68. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of Class Discussions.

		Pe	rcen	tages	Givin	g Diffe	rent	Ratin	gs of
	ex and ligence Group (1)	(<u>2)</u>	Usef 3 (3)	2 (4)	1 (5)	(10)	Int. 3 (11)	erest 2 (12)	1 (13)
Bows	Highest Third	63	37	0	0	58	33	9	0
Boys	Middle Third	69	31	0	0	71	25	4	0
	Lowest Third	57	43	0	0	70	30	0	0
	Sub-total	55	27			55	23	4	0
Girls	Highest Third	78	22	0	0	56	44	0	0
dii io	Middle Third	72	28	0	0	69	25	6	0
	Lowest Third	67	33	0	0	67	28	5	0
	Sub-total	60	22	0	0	52	27	3	0
	Total -	115	49			107	50	7	0

Majorities of all groups rated class discussion very useful and very interesting.

Table 58. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of Glass Discussions.

Percentages Giving Different Ratings of

-	Jeers	Inte	<u>I</u>	2	lnect	olesu	4	x and igence Group	
TELL	(er)	(LL)	(or)	<u> </u>	(A)	the service of the se	minutes in	(1)	and the property
0	6	33	88	0	0	37	63	Highest Third	Boys
0	市	25	71	0	0	31	69	Middle	9,00
0	0	30	.79	0	0	हमें	22	Lowest	
0	jl.	23	55			7'5	55	Sub-total	
0	0	47.14	36	0	0	22	76	Highest Third	Girls
0	9	25	69	0	0	28	27	Middle	
0	3	28	67	0	0	33	7.9	Lowest	
O Property	our Decade	75	. 52	0	0	SS	60	Sub-total	
0	7	50	107			64	3115	otel -	T

Majorities of all groups rated class discussion very useful and very interesting.

Table 69. Opinions of Eighth Grade Boys and Girls of Different
Ability Levels Concerning the Usefulness, and
Interest of Taking Notes on Class Reading.

		Pe	rcen	tage	s Giv	ing	Diff	erent	Rati	ngs of
144	ex and ligence Group	<u>4</u> (<u>2</u>)	Usef 3 (3)	ulne 2 (4)	33 1 (5)		<u>4</u> (10)	3	2 (12)	1 (13)
Boys	Highest Third	13	46	41	0		0	58	38	4
Doys	Middle Third	31	69	0	0		12	71	17	0
	Lowest Third	9	39	48	4		0	44	52	4
	Sub-total	16	44	21	1		4	49	27	2
Girls	Highest Third	9	91	0	0		13	78	9	0
GILIS	Middle Third	19	78	3	0		19	81	0	0
	Lowest Third	0	6	39	55		0	11	78	11
	Sub-total	9	55	8	10		12	51	17	2
	Potal -	25	99	29	11		16	100	44	4

Lowest groups judged the taking of notes of little use or interest. Highest third boys were almost evenly divided between useful and little use. Majorities of the grade considered this activity useful and interesting.

Table 69. Opinions of Eighth Grade Boys and Girls of Different Ability Levels Concerning the Usefulness, and Interest of Taking Notes on Class Reading.

		Per	rcen	iagei	divid s	ng Di	ell.	rent	Ratin	to age
	ex and ligence Group (1)	46	3	lnes 2 (4)	I	c)	1/4	Inte 3 (11)	2 (12)	(13)
Dave	Highest Third	13	94	Th	0		0	58	38	ħ
Boys	Middle Third	31	69	0	0		S.	17	17	0
	Lowest	2	39	84	ħ		0	市村	52	şt.
	Sub-total	16	44	21	I		4	64	75	2
Girls	Highest Third	6	16	0	0		3	78	6	0
	Middle Third	19	78	3	0		6	18	0	0
	Lovest	0	9	39	55	ode Frake S	0	11	78	11
	Sub-total	9	55	8	10		S	51	17	9
	Potel -	25	99	62	11		6	001	th.	4

Lowest groups judged the taking of notes of little use or interest. Highest third boys were almost evenly divided between useful and little use. Majorities of the grade considered this activity useful and interesting.

Table 70. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of Breaking Main Problem into Several Subproblems.

	Ecvles,	Pe	rcen	tage	s Givir	g Diffe	rent	Rati	ngs of
	ex and ligence Group	4	Usef 3	2	8 1 days	5 D.40	Inte	erest	1
-	(1)	(2)	(3)	(4)	(5)	(10)	(11)	(12)	(13)
Boys	Highest Third	63	21	16	0	71	17	8	(23)
	Middle Third	14	77	9	0	53	47	0	0
	Lowest Third	26	57	17	0	0	48	52	0
	Sub-total	24	45	13	0	36	31	14	1
irls	Highest Third	13	87	0	0	69	28	3	0
177.70	Middle Third	28	69	3	0	13	85	2	0
	Lowest	0	44	39	17	0	11	89	0
	Sub-total	13	58	8	3	26	38	18	0
	Total -		103	21	3	62	69	32	1

Lowest third groups rated this procedure of little use or interest except for the boys who gave a majority to the rating useful. Boys and girls in the highest and middle level found the item useful, or very useful; interesting or very interesting.

and interest were accorded these free booklets by widdle and

Table 70. Opinions of Eighth-grade Boys and Girls of Different Ability Levels Concerning the Usefulness and Interest of Bresking Wain Problem into Several Subproblems.

 to ag	Ratin	daere	Diffe	Giving	ages	rcent	Per		
(13)	rest 2 (12)	E	(OT) 4	I	lness 2 (4) (E	1	Sex and ntelligence Group	r.T.
#	8	17	77	0	9t	22	63	Highest Third	. C
0	0	24	53	0	6	77	14	Middle Third)C.
0	SZ	84	0	0	77	57	26	Lowest	
1	41	31	36	0	13	45	45	Sub-total	
0	3	28	69	0	0	87	13	Highest Third	2.5
0	S	85	13	0	3	69	88	erbbim	. 3.3
0	68		0	97	39 1	神神	0	Lovest	
0	81	38	98	3	8	58	23	Sub-total	
I	32	69	62	3	13	103	37	- Lajou	

Lowest third groups rated this procedure of little use or interest except for the boys who gave a majority to the rating useful. Boys and girls in the highest and middle level found the item useful, or very useful; interesting or very interesting.

Table 71. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of Free Workbooks by Pepsi-Cola on Steel, Oil, Lumber,
Transportation, Glass, Cotton, Electricity and
Movies.

		Pe	rcent	tages	Giving	Diff	erent	Ratin	ngs of
	ex and ligence Group	<u>4</u> (<u>2</u>)	Usefi 3 (3)	2	1 (5)	(10)	3	2 (12)	<u>1</u> (13)
Dome	Highest Third	38	62	0	0	42	58	0	0
Boys	Middle Third	74	26	0	0	74	26	0	0
	Lowest Third	87	13	0	0 0	74	26	0	0
	Sub-total	55	27	0	0	53	29	0	0
irls	Highest Third	19	75	6	0	9	88	3	0
TLTS	Middle Third	69	31	0	0	71	29	0	0
Lowest Third		83	11	6	0	78	22	0	0
Sub-total		43	36	3	0	42	39	1	0
	Total -	98	63	3	0	95	68	110	0

All the boys' ratings went to either very useful or useful and very interesting or interesting. With the exception of four the same was true of the girls. Highest ratings of usefulness and interest were accorded these free booklets by middle and lowest third groups.

Table 71. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of Free Workbooks by Pepsi-Cola on Steel, Oil, Lumber,
Transportation, Glass, Cotton, Electricity and
Movies.

	itgence Group	软	Usefr 3	alner S	28	41	Inte	erest 2	1
	(1)	(3)	(3)	(4)	(5)	(01)	(11)	(31)	(13)
73.77.00	Highest Third	38	62	0	0	2th	88	0	0
eye	Middle	74	26	0	0	好了	26	0	0
	Lowest	78	EL	0	0	47	98	0	0
	Sub-total	55	75	0	0	53	62	0	0
sial	Highest Third	51	75	9	0	6	83	3	0
Gods dada	Middle Third	69	31	0	0	71	29	0	0
	Lowest	83	II.	9	0	78	22	0	0
	Sub-total	£43	36	3	0	54	39	1	0
T	- Isjoi	86	63	3	0	95	68	I	0

All the boys' ratings went to either very useful or useful and very interesting or interesting. With the exception of four the same was true of the girls. Highest ratings of usefulness and interest were accorded these free booklets by middle and lowest third groups.

Table 72. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of Class Reference Books.

		Pe	rcent	tages	Giving	Diffe	erent	Ratin	ngs of
	ex and ligence Group	(2)	Useft 3 (3)	lnes 2 (4)	1	<u>4</u> (10)	Into 3 (11)	2 (12)	1 (13)
Boys	Highest Third	8	84	8	0	29	50	13	8
Dojs	Middle Third	74	26	0	0	69	31	0	0
	Lowest Third	26	65	9	0	9	61	30	0
	Sub-total	34	41	7	0	33	37	10	2
Girls	Highest Third	16	84	0	0	31	69	0	0
42120	Middle Third	75	25	0	0	19	81	0	0
	Lowest Third	17	78	5	0	17	67	16	0
	Sub-total	32	48	2	0	19	60	3	0
	Potal -	66	89	9	0	52	97	13	2

Class reference material was found of use and interest by all groups.

half judged the ratorial interesting.

Table 72. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of Class Reference Books.

		Per	rcenf	sege	e Giving	Diffe	inere	Ratin	to ago
	ex and ligence Group (1)	4	Usefu 3 (3)	S	1	(0I) #	Inte	2 (12)	1 (13)
	Highest Third	8	448	8	0	29	50	E.I	.8
Boys	Middle Third	47	26	0	0	69	31	0	0
	Lowest	26	65	9	0	6	61	30	0
	Sub-total	34	41	1/2	0	33	37	10	S
Girls	Highest Third	16	48	0	0	31	69	0	0
GTITH	Middle	75	25	0	0	19	18	0	0
	Lovest	17	87	5	0	.72	67	16	0
	Sub-total	32	84	2	0	19	60	3	0
	Potel -	66	68	6	0	52	97	13.	2

Class reference material was found of use and interest by all groups.

Table 73. Opinions of Eighth-grade Boys and Girls of Different Ability Levels Concerning the Usefulness and Interest of File of Boxes of Illustrative Science Material.

		Pe	rcent	ages	Givi:	ng Diffe	rent	Ratin	ngs of
ALLO DI BARRO DE	ex and ligence Group	4	Useft 3	1 (4)	1	4 (70)	Into 3 (11)	erest	1 (22)
-	(1)	(2)	137	747	(5)	(10)	777)	(12)	(13)
	Highest Third	63	25	4	0	67	29	14	0
Boys	Middle Third	66	31	0	0	57	34	0	0
	Lowest	78	22	0	0	78	22	0	0
	Sub-total	56	22	1	0	56	25	1	0
04-7-	Highest Third	72	25	0	0	44	50	6	0
Girls	Middle Third	82	18	0	0	63	37	0	0
	Lowest Third	94	6	0	0	78	55	0	0
	Sub-total	66	15	0	0	48	32	2	0
3	Total -	122	37	1	0	104	57	3	0

The file of boxes of illustrative material for supplementing class texts was very useful to all groups and very interesting to all levels except in the case of highest third girls, where half judged the material interesting.

Table 73. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of File of Boxes of Illustrative Science Material.

	ilgence Group	#	Usef	alner 2	28	14	Inte	jaore	1
	(1)	(3)	(3)	(4)	(5)	(01)	(11)	(SI)	(13)
	Highest Third	63	25	47	0	67	62	ħ	0
oys	Middle	99	31	0	0	57	34	0	0
	Lowest	78	22	0	0	78	22	0	0
	Sub-total	56	22	I	0	95	25	1	0
alut	Highest Third	27	25	0	0	th	50	9	0
Granda de eda	Middle	82	18	0	0	63	37	0	0
	Lowest	1/2	9	0	0	87	SS	0	0
	Sub-total	99	15	0	0	84	32	S	0
T	- Istol	122	37	1	0	401	57	3	0

The file of boxes of illustrative material for supplementing class texts was very useful to all groups and very interesting to all levels except in the case of highest third girls, where half judged the material interesting.

Table 74. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of Free Science Series of Booklets by Westinghouse.

		Pe	rcen	tages	Giving	Diffe	rent	Ratin	ngs o
Intel	ex and ligence Group	4	3	ulnes	1	4	Inte	erest	1 (22)
ALAN MICELLA	(1)	(5)	(3)	(4)	(5)	(10)	(11)	(12)	(13)
Boys	Highest Third	46	42	4	0	46	38	13	0
Bayo	Middle Third	63	34	3	0	66	31	0	0
	Lowest Third	35	52	9	0	83	17	0	0
	Sub-total	41	34	4	0	53	24	3	0
Girls	Highest Third	25	75	0	0	3	85	12	0
Cirls	Middle Third	22	75	3	0	53	47	0	0
	Lowest Third	22	72	0	0	50	44	6	0
	Sub-total	19	61	1	0	27	50	5	0
	Total -	60	95	5	0	80	74	8	0
				all and					

These free science pamphlets were of greatest usefulness and interest to boys. Girls of all levels of ability closely agreed on their reactions with three-fourths of each rating the material useful.

Table 74. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of Free Science Series of Booklets by Westinghouse.

 2	0 830	Reti	rent	Diffe	gniv	017	tages	rcent	Per			
Interest 1 (10) (11) (12) (13)					a succession	I	S	Usein 3 (3)	4	Sex and Intelligence Group (1)		
	0	13	38	94		0	\$l	24	94	Highest Third	nwa (I	
	0	0	31	99		0	3	34	63	Middle Third	Boys	
a.	0	0	II	83		0	2	52	35	Lowest		
	0	3	45	53		0	#	34	Th	Sub-total		
	0	12	85	3		0	0	75	25	Highest Paird	Girls	
	0	0	74	53		0	3	75	SS	Middle	distance and the	
,	0	9	n'n	50	Mirror to appendix	0	0	72	22	Lovest		
	0	2	50	75	ether cop - politica des	0	1	19	19	Sub-totel		
	0	8	47	08		0	5	95	60	Total -		

These free science pamphlets were of greatest usefulness and interest to boys. Girls of all levels of ability closely agreed on their reactions with three-fourths of each rating the material useful.

Table 75. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of School Library Encyclopedias - Book of Knowledge,
Compton's Pictured Encyclopedia.

Invel	ex and ligance Group	Pe	rcen	tage	s Givin	g Diffe	rent	Ratio	ngs of
	ex and ligence Group	(2)	Usef	ulne	88	(30)	Inte	erest	(13)
	(1)	(2)	(3)	(4)	(5)	(10)	(11)	(12)	(13)
Boys	Highest Third	50	42	8	0	54	38	8	0
	Middle Third	0	66	31	0	3	53	44	0
	Lowest	0	4	92	4	0	0	83	17
	Sub-total	12	34	34	1	14	28	36	4
Girls	Highest Third	0	75	25	0	6	63	25	3
	Middle Third	0	56	41	0	3	28	66	3
	0	17	78	5	0	6	88	6	
	Sub-total			35	1	3	30	45	3
	Potal -	12	79	69	2	17	58	81	7

Encyclopedias were found of most use and interest by highest third groups and of least use and interest by lowest third groups.

Table 75. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of School Library Encyclopedias - Book of Knowledge,
Compton's Pictured Encyclopedia.

	st and igence Group	47	leau	ulnes	83	11	Int	srest	!*
	(1)	(<u>s</u>)	(3)	(4)	南		(11)		(13)
ayos	Highest Third	50	24	8	0	54	38	8	0
ayoc	Middle Third	0	99	31	0	3	53	村村	0
	Lowest	0	4	56	JI.	0	0	83	17
	Sub-total	12	34	34	I	14	28	36	ħ
efali	Highest Third	0	75	25	0	9	63	25	3
Cindo de de d	Middle Third	0	56	Th	0	3	88	66	3
	Lowest	0	1.7	78	5	0	9	88	9
	Sub-total	0	54	35	L	3	30	45	£
r	- Isto	12	79	69	S	17	58	18	7

Encyclopedias were found of most use and interest by highest third groups and of least use and interest by lovest third groups.

Table 76. Opinions of Eighth-grade Boys and Girls of Different Ability Levels Concerning the Usefulness and Interest of Classroom Wall Posters.

In Is p	orhape t	Pe	rcen	tage	Givi	ing :	Diffe	rent	Ratin	ngs of
Sex and Intelligence	Group	4	Usef 3 (3)	2	1	62 8 6011	4 (10)	3	rest 2 (12)	<u>1</u> (13)
Hig Thi Boys	hest	63	33	4	0	deci	58	33	0.0	0
	dle	51	46	3	0		31	66	3	0
Low Thi		9	39	52	0	100	70	30	0	0
Sub-to		35	33	14	0	bas	41	38	1	0
Hig Thi	hest rd	0	63	31	6		63	34	3	0
Mid Thi		53	47	0	0		3	63	34	0
Low Thi	-	0	6	78	11	218.6	56	44	0	0
Sub-to	tal	17	36	24	4	Train La	31	39	12	0
Total -		52	69	38	4		72	77	13	0

Middle third groups found classroom wall posters most useful as did also highest third group. Lowest third groups saw little usefulness.

Table 76. Opinions of Eighth-grade Boys and Girls of Different
Ability Levels Concerning the Usefulness and Interest
of Classroom Wall Posters.

Percentages Giving Different Ratings of									
Ser and Intelligence Group (1)		Usefulness 4 3 2 1 (2) (3) (4) (5)				Interest 4 3 2 1 (10) (11) (12) (13)			
OF THE OWNER WAS	content of the content of written or \$15 has produced record	a land	ad Miller	alaide.	and the summary	- Land	where glas	- Landa	- latinate
Boys	Highest Third	63	33	şi.	0	58	33	0	0
	Middle	51	46	3	0	31	99	8	0
	Lowest Third	9	39	52	0	70	30	0	0
cirio	Sub-total	35	33	机工	0	Th	38	I	0
	Highest Third	0	63	31	9	63	34	3	0
	Middle Third	53	Lit	0	0	3	63	34	0
	Lowest Third	0	6	78	2.5	56	44	0	0
	Sub-total	17	36	49	4	31	39	12	0
	- Letol	52	69	38	\$2	57	77	13	0

Middle third groups found classroom wall posters most useful as did also highest third group. Lowest third groups saw little usefulness.

CHAPTER IV.

CONCLUSIONS AND RECOMMENDATIONS Conclusions

It is perhaps unnecessary to call the reader's attention to the fact that this is not a study of actual usefulness, difficulty, and interest under all conditions, but rather a study made under certain existing teaching conditions.

There appears no significant connection between the three criteria used as basis for the ratings. A difficult topic may be useful, or interesting, or both. Interesting topics were not found to be necessarily useful. Useful items were not always interesting. It is at once evident that pupils exercised much independence of thought in making their choices. A general agreement between sexes in the grade is noted and also between sexes in the different ability groupings. Pupils of highest ability groups were more aware of the usefulness of material introductory to advanced science. Generally speaking, all groups were aware of implications dealing with their own environment. As would be expected, lowest groups were little interested in the theoretical. Topics of practical everyday use were of common interest. i.e. tire pump, fire extinguishers, workbooks were found least useful by highest third groups. Both sexes saw little use in astronomy except highest third boys. General agreement was found in both sexes as to the usefulness and interest of the work on Air. Elements lacked usefulness appeal to all except highest ability groups. It is interesting to conjecture at this point

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as to whether the atom bomb, which was introduced after this questionnaire was given, would have affected class interest in atomic energy and elements. Air conditioning possessed greater interest appeal for boys and proved of greater difficulty for girls. Regardless of ability groups, the work with the siphon illustrating unbalanced air pressure was rated as of little use and difficult to handle. Breathing, as a subtopic of Air, was recognized as useful by only the highest third groups. In spite of the novelty attached to its use, class work with the microscope was uninteresting and useless to lowest ability groups. A study of man's classification of living things and their points of similarity and difference, although useful and difficult to middle and highest groups, was allegedly known already by lowest groups. Flowers and plants had little interest appeal as handled. Alcohol and tobacco, as well as propaganda efforts in advertising them, were rated as useful and interesting even in lowest ability groups where most of the boys were habitual smokers. A summary of TEACHING METHOD ratings gives highest ratings of usefulness and interest to sound and silent films, classroom experiments and demonstrations, blackboard diagrams, class discussion, reference materials, and wall posters. The latter were large illustrations in color of developments in transportation. conservation, natural resources, and electrical appliances. Textbooks used in class (Our Environment Bk. II; Creative Science; and Modern Science) were satisfactory to all except

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lowest third boys. Note taking in silent reading of texts and reference materials was rated as of little help by lowest third groups only.

Con12

This first combridge Recommendations

These recommendations are made for what they are worth and merely represent some of the things the writer would do if he were to repeat the teaching of eighth-grade-science under similar circumstances with the idea of increasing interest and usefulness and decreasing difficulty.

Topic AIR --- More pupil participation and encouragement to do home experiments would be more interesting and present challenges to the pupil. The work with siphons needs a better buildup and simpler illustrations to precede it. The medicine dropper, fountain pen, and soda straw could be used to show effects of unbalanced air pressure before the siphon is introduced. Its commercial use in washing machines, flush tanks, and common pantry cream separators could be utilized to create interest and secure proper concepts. Using the siphon as a point of departure, early experiments to measure the weight of air by noting its ability to support a column of liquid could be introduced. From this point the use of mercury and its advantages over water or other liquids could be handled in a study of the mercury barometer. Classroom construction of a workable mercury barometer would be interesting. The relation of pressure changes to weather could next be studied with weather records being a class project.

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Topic AIA --- More participation and encouragement of ineserg bas gaitsereint erom ed bluow einemiregre emod challenges to the pupil. The work with sighous needs a better entablem edf . it sheered of anciparizuffi refgats bas qublind dropper, fountain pen, and sode strew could be used to show at models of the structure of the state of the state of introduced. Its commercial use in washing machines, flush tanks, and common pantry cream separators could be utilized to create interest and secure proper concepts. Using the sighon as a point of departure, early experiments to measure the To amulos a fraggue of villids att gaiton vo ris to thatew liquid could be introduced. From this point the use of mercury and its advantages over water or other liquids could be handled in a study of the mercury berometer. Classroom construction of a worksble mercury barometer would be interesting. The relation of pressure changes to weather could next be studied with weather records being a class project.

Rocks and Soil -- Pupils at this age are natural collectors and use could be made of this tendency by starting a school museum with common rocks constituting the first specimens. This first contribution could be the motivation for the first field excursion to study local rock formations. This would require a carefully planned itinerary and would probably have to be repeated several times. Dr. Elwood Heiss of Stroudberg, Pennsylvania Teachers' College says:

"The natural instinct for collecting and hoarding many children seem to have should be utilized for building up the museum as well as for motivating and vitalizing the subject matter of science courses."

One of the chief aims of science is to make children intimately acquainted with the nature of the world in which they live.

Nearby public museums should be contacted to determine availability of specimens and models on a loan or rental basis.

Wider use could be made of teaching films now available showing in a very interesting way the work of erosion and weathering agents. It is quite likely that sand table models showing meandering rivers and silt carrying ability of streams would be an efficient means of visually portraying our changing earth.

<u>Plants</u> -- Instead of commercially made slides the work could be made more interesting by making the slides in class using material brought from home. The unit on the frog should be developed more from the visual standpoint utilizing flat

^{1/} Dr. Elwood Heiss et al, Modern Methods and Materials for Teaching Science. Macmillan, 1940. page 192.

Rocks and Soil -- Pupils at this age are natural collectors and use could be made of this tendency by starting a school museum with common rocks constituting the first specimens. This first contribution could be the motivation for the first field excursion to study local rock formations. This would require a carefully planned itinerary and would probably have to be repeated several times. Dr. Elwood Heiss of Stroudberg, Pennsylvania Teachers' Gollege says:

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pictures from nature periodicals, film strips, slides and bulletin board display material. The main concept here is the fact that frogs are an example of metamorphosis in animal life. Tadpoles and frog's eggs may be brought in by pupils when obtainable and the eggs may be hatched without difficulty in a large bowl left in the sun. Eggs, embryos, and newly hatched frogs can be examined under the school microscope. Tadpoles in the process of becoming adult frogs are an interesting subject. This activity, however, should be handled in the spring.

General -- Lowest groups need greater practice in simple outlining stressing recognition of important facts and the ability to separate grain from chaff. Lowest groups dislike to write complete sentences when doing silent reading. This may be because of their extremely poor handwriting and an inability to spell correctly. Drill in selecting important thoughts would improve their ability to summarize. It would be wise to capitalize upon the interest in experimentation by encouraging home experimenting and more pupil participation in classroom demonstrations. In all cases the problem should be approached in a scientific manner. This involves not only previous observation but careful experimentation to formulate hypotheses and logical conclusions as a result of the experiment. Following this there should be an attempt on the part of the pupil to discover further applications of the hypotheses.

pictures from nature periodicals, film strips, slides and bulletin board display material. The main concept here is the fact that frogs are an example of metamorphosis in animal life. Tadpoles and frog's eggs may be brought in by pupils when obtainable and the eggs may be hatched without difficulty in a large bowl left in the sun. Eggs, embryos, and newly hatched frogs can be examined under the school microscope. Tadpoles in the process of becoming adult frogs are an interesting subject. This activity, however, should be handled in the spring.

General -- Lowest groups need greater practice in simple outlining stressing recognition of important facts and the of chilich square freed. Then more mister eferces of villids vrite complete sentences when doing silent reading. This may be because of their extremely poor handwriting and an inability to spell correctly. Drill in selecting important thoughts esty ed bluow il .estramus of willids ried; evorqui bluow to capitalize upon the interest in experimentation by nolizabilitea Ilaur erom bas galinemirease emod galgeruoone bluone meldorg ent associans. In all associantement moorassio ni be approached in a scientific manner. This involves not only ejslumrol oj moljajnemiregre Lulerso jud noljavrendo apolyerg hypotheses and logical conclusions as a result of the experiment. Following this there should be an attempt on the end to snotted liggs rentral revocable of ligury end to trace hypotheses. Science Clubs -- The science club is a useful means of stimulating pupil participation and initiative in learning. This activity offers him an opportunity for specialization which he does not have in the class. In the school under discussion there was no science club for eighth grade pupils although there was one for grade nine restricted to boys. This activity has so many possibilities that such a club should be made available to all pupils regardless of sex or grade. Such clubs could visit power plants, telephone exchanges, greenhouses, filtration plants, dairies and local industries to observe man's dependence upon mechanical principles and natural resources as already studied in school. This activity has its vocational guidance values, also, affording a glimpse of industry in its natural habitat.

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CHAPTER V.

the medical consular a lint of all the topics we covered

APPENDIX

SAMPLE FORM OF QUESTIONNAIRE USED

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SAMPLE FORM OF QUESTIONNAIRE USED

This booklet contains a list of all the topics we covered in 8th grade science this year. You are to give your opinion of each topic from each of these standpoints: First, how useful did you find the topic; second, how difficult did it seem; and third, how interesting was it to you? Read the directions carefully and put a check mark () in the column opposite each topic that best describes your opinion.

DO NOT SIGN YOUR NAME

Section 1. How Useful Did You Find These Topics?

Put a check mark in one of the four columns to show how useful you found the topic to be.

> Very little No use Very Useful Useful use at all

- 1. Description and definition of elementary science
- 2. Discussion of other sciences 3. The chemical make-up of water
- 4. Definition and discussion of matter

5. Kinds and forms of matter

6. Forms of water

7. Water's part in making life possible 8. Water in plants

- 9. The water cycle in nature 10. The sun and its family
- 11. Important facts about the earth

12. The moon

13. Other heavenly bodies

14. Gases that make up the air

15. Air pressure 16. Air and fire

- 17. Preparation of oxygen
- 18. Moving of air around a fire 19. Building and controling a fire
- 20. Elements -- chemical formulas -- atoms

21. Air in the home (humidity)

- 22. Measuring humidity with the hygrometer
- 23. Air conditioning 24. The tire pump
- 25. The siphon 26. Breathing
- 27. Diseases of the breathing system
- 28. Cave man and the discovery of fire 29. Methods of making a fire
- 30. What happens when a thing burns

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Very Very Very Wo use Useful Useful use at all

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26. Breathing

27. Diseases of the breathing system 28. Cave was and the discovery of five

29. Methods of making a ring

30. What happens when a thing burns

Very little No use Useful Useful use at all

the ruting columns were. .

31. How to put out a fire

32. Treatment of burns

33. Common fire laws, state and local

34. Fire drills

35. How to ring a fire alarm

36. Fire extinguishers, kinds, uses

37. How the earth was formed

38. How the first rocks were made
39. The 3 families of rocks, how to
recognize them

40. Why New England and Natick are rocky 41. How rocks have affected industry in

this locality

42. Classroom practice in recognizing kinds of rocks

43. How the earth is changing

44. Volcanoes, geysers, springs and caves

45. Microscopic classwork with cells

46. Study of organic and inorganic things

47. How living things are classified

48. Life history of the frog

49. How cells grow

50. Comparison of plants and animals

51. Parts of a plant 52. Parts of a flower

53. Self and cross pollenation

54. Artificial pollenation

55. The work of bees

56. Parts of the human body

57. Bones and muscles 58. How nerves work 59. Effect of tobacco 60. Effect of alcohol

61. Study of tobacco and alcohol advertisements

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Treatment of burns

Common fire laws, state and local

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advertisements

Section 2 of the questionnaire differed from Section 1 only in the heading and column captions which referred to difficulty. The four columns for pupil ratings were labeled: Very Difficult, Difficult, Easy, and Knew it Already.

Section 3 concerned interest and the rating columns were headed: Very Interesting, Interesting, Of Little Interest, and Disliked the Topic.

Section 4 dealt with pupil opinions of the methods and materials used in the course. Ratings were asked for interest and usefulness with column headings as mentioned above.

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